

Computational Research and Theory Facility
Draft Environmental Impact Report

SCH # 2007072106

Revised Draft EIR Text

Prepared for:

University of California
Lawrence Berkeley National Laboratory

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REVISED DRAFT EIR TEXT

The University of California, Ernest Orlando Lawrence Berkeley National Laboratory (LBNL), has issued revised text for two areas of the Computational Research & Theory (CRT) Facility Draft Environmental Impact Report (EIR) published on November 9, 2007. This revised text reflects that a cumulative project toxic air contaminant impact would be significant and unavoidable. In addition, the cumulative biological impacts evaluation is revised to reflect the final tree count for LBNL's proposed Helios project. This clarifying language does not change the cumulative biological impact conclusions for the CRT project.

Revisions have been made to three sections: **Chapter 2.0, Executive Summary**; **Chapter 5.0, Cumulative Impacts**; and **Chapter 6.0, Alternatives**. The following pages present the revisions, with additions shown in underlined text and deletions shown in ~~striketrough~~. This document includes page 2.0-17 of **Chapter 2.0**; the complete text of **Chapter 5.0**, with changes only to the Air Quality and Biology discussions on pages 5.0-17 through 5.0-20; and the complete text of **Chapter 6.0**, with changes to the Air Quality discussions throughout the chapter and to the impact summary table on pages 6.0-21 and 6.0-22.

A copy of the revised text, the Draft EIR, and a public hearing meeting announcement are available online at the following web site:

<http://www.lbl.gov/community/CRT/>

The Draft EIR, including these revisions, is available for review by the public and interested parties, agencies, and organizations for a period of at least 45 days as required by California law. In reviewing the Draft EIR, reviewers should focus on the document's adequacy in identifying and analyzing significant effects on the environment and ways in which the significant effects of the project might be avoided or mitigated. To ensure inclusion in the Final EIR and full consideration by the lead agency, comments on the Draft EIR must be received by January 4, 2008, at the following address:

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Berkeley, California 94720
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Pursuant to state law (Public Resources Code Section 21091(d)(3)), the Berkeley Lab will accept e-mail comments in addition to mailed comments or oral comments made at the Draft EIR public hearing. Reviewers are encouraged to follow up on any e-mail comments with letters. A public hearing will be

held during the review period to provide the public with an opportunity to comment on the Draft EIR. Following the close of the review period, responses to comments on the Draft EIR will be prepared and published as a separate document. The Draft EIR text and appendices, together with responses to comments and any text changes made to the original Draft EIR, will constitute the Final EIR.

2.0 EXECUTIVE SUMMARY

2.1 PURPOSE

This Draft EIR evaluates the potential for significant environmental impacts from the construction and operation of the Computational Research and Theory (CRT) Facility project (CRT project) proposed by the Lawrence Berkeley National Laboratory (LBNL).¹ It is the intent of this Executive Summary to provide decision makers, responsible agencies, and the public with a clear, simple, and concise description of the proposed project and its potential significant environmental impacts. Section 15123 of the *California Environmental Quality Act (CEQA) Guidelines* requires that the summary identify each significant effect, recommended mitigation measure(s), and alternatives that would minimize or avoid potential significant impacts. The summary is also required to identify areas of controversy known to the lead agency, including issues raised by agencies and the public and issues to be resolved. These issues include the choice among alternatives and whether or how to mitigate significant effects. This section focuses on the major areas of importance in the environmental analysis for the proposed project and uses non-technical language to promote understanding.

2.2 PROJECT LOCATION

The approximately 2.25-acre CRT project site is located on the LBNL site. LBNL is located east of the main campus of the University of California (UC), Berkeley, within the cities of Berkeley and Oakland in Alameda County, and is located on approximately 200 acres that are owned by the University of California and leased to the U.S. Department of Energy (DOE). The project site is located near the western entrance to the LBNL property in the city of Berkeley and has frontage on Seaborg Road. The project site comprises sloped terrain and is vegetated with non-native grasses and eucalyptus, immature redwood, bay, and oak trees.

The CRT project site is flanked on three sides by Buildings 70 and 70A to the east, the Building 50 complex to the north, and Cyclotron Road and the Berkeley Lab's Blackberry Canyon entrance gate to the west. The LBNL 2006 Long Range Development Plan (LRDP) designates the site for Research and Academic uses.

¹ LBNL has also published another EIR for the Helios Energy Research (Helios) Facility project. Both the Helios EIR and this one are being circulated for agency and public review. Both the CRT and the Helios projects would be located at LBNL's hill site location and would be built over approximately the same period of time. The cumulative impacts of both projects are considered in this EIR.

The LBNL site itself is surrounded by a mix of land uses, including open space, institutional uses, and residential and neighborhood commercial areas. The University of California, Berkeley, including the Strawberry Canyon open space areas, lies west and south of the LBNL site. Residential neighborhoods and a small neighborhood commercial area in the city of Berkeley lie to the north and northwest, and regional open space, including the 2,000-acre Tilden Regional Park, lies to the northeast and east.

2.3 PROJECT DESCRIPTION

The CRT project includes development of a new building, access driveways and pedestrian access, and associated infrastructure to accommodate (1) the National Energy Research Scientific Computing (NERSC) Center, (2) the associated High Performance Computing (HPC) center, and (3) researchers and students from the Lab's Computational Research Division and the joint UC/Berkeley Lab Computational Science and Engineering program. The approximately 140,000-gross-square-foot (gsf), multi-story building would include both a supercomputer equipment floor and an office structure, with space for computing, offices, and conference rooms. The proposed building abuts a steep hillside, and the upper floor of the office structure would be accessible from the existing parking lot that connects the Building 50 and 70 complexes (see **Figure 3.0-3, CRT Conceptual Project Design**). The new advanced computational equipment and office space would support UC Berkeley's academic programs in computational science and engineering and the needs of computer scientists, mathematicians, and theoreticians who are currently engaged in high performance computing and high performance production computing and computational research.

2.4 PROJECT OBJECTIVES

Key objectives of the proposed project are to:

- Provide an integrated and appropriately designed facility that would allow for the continued operation and future advancement of the Berkeley Lab's NERSC High Performance Computing national users facility, Computational Research Division and joint Berkeley Lab/UC Berkeley Computational Science & Engineering programs;
- Provide adequate space, chilling capacity, and infrastructure to accommodate next-generation computing equipment and to allow for continual future upgrades to such equipment;
- Provide accessibility to a large, reliable, and economical electrical power source. The power source should be capable of serving both the immediate and potential future needs of Berkeley Lab's computing program;

- Provide researchers with convenient access to other Lab scientific facilities, programs, researchers, and services; locate the facility such that it fosters interaction and collaboration between the project and UC Berkeley programs; and
- Meet University of California policies on sustainability and achieve efficiencies in energy conservation, temperature control, operational and maintenance services, and transportation (i.e., near public transportation, and without provision of large amounts of parking).

2.5 TOPICS OF KNOWN CONCERN

To determine which environmental topics should be addressed in this EIR, LBNL prepared an Initial Study and circulated it along with a Notice of Preparation (NOP) in order to receive input from interested public agencies and private parties. Copies of the NOP and Initial Study are presented in **Appendix 1.0** of this EIR. Based on both the Initial Study and the NOP comments, this EIR addresses the following environmental topics in depth:

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|-----------------------------------|--|
| • Aesthetics | • Land Use and Planning |
| • Air Quality | • Noise |
| • Biological Resources | • Population and Housing |
| • Cultural Resources | • Public Services |
| • Geology and Soils | • Transportation and Traffic |
| • Hazards and Hazardous Materials | • Utilities, Service Systems, and Energy |
| • Hydrology and Water Quality | |

2.6 IMPACT SUMMARY

Pursuant to the findings of the Initial Study, this EIR assesses each potentially significant impact to the environment that could result from implementation of the proposed project. A detailed discussion regarding potential impacts is provided in **Section 4.0, Environmental Setting, Impacts, and Mitigation Measures**. In accordance with the *CEQA Guidelines*, a summary of the project's impacts is provided in **Table 2.0-1, Summary Table of Significant Impacts, Mitigation Measures, and Level of Significance after Mitigation**, presented at the end of this section. Also provided in **Table 2.0-1** are mitigation measures that are recommended to avoid or reduce significant project impacts. The table indicates whether or not implementation of the recommended mitigation measures would reduce the level of impact to a less than significant level.

2.7 ALTERNATIVES TO THE PROPOSED PROJECT

The alternatives evaluated in this EIR focus on avoiding or further reducing potentially significant project impacts associated with aesthetics, noise, and traffic and circulation as compared to the proposed project. Project alternatives include the following:

Alternative 1: No Project Alternative. CEQA requires that a “No Project” alternative be considered. “No Project” is generally considered to be equivalent to a “no development” alternative. With this alternative, the proposed project would not be implemented. However, the site is designated for development by the 2006 LRDP, and thus future development could be constructed at the project site. The existing LBNL facility in Oakland would continue to be utilized.

Alternative 2: Low Profile Design Alternative. This alternative would configure the supercomputer facilities (equipment floors) and office facilities components of the CRT facility as a single wide building mass approximately three stories high. The intent of this alternative is to reduce the perceived bulk and height of the proposed multi-story building. The supercomputer facilities would be constructed in roughly the same footprint designated for the proposed project. This building would consist of two machine floors with approximately 20,000 gsf for a mechanical basement space and approximately 32,000 gsf for the HPC equipment floor. The main office block (office facilities) would rise two to three stories above the computer level and would provide a variety of general office, computer configuration and support, software support, videoconferencing, meeting, and visualization laboratory spaces, similar to the proposed project.

The total square footage of the building would be approximately 113,000 gsf. The amount of office space would be reduced compared to the proposed project. In addition, the amount of common space would be reduced with this alternative since there would be no upper-level loggia or pedestrian connection with the Building 70 complex. Access, parking, circulation, and landscape features would be generally similar to those including in the proposed project.

Alternative 3: Alternate LBNL Location. This alternative would make use of other space within LBNL to develop the CRT facility project. Alternative 3 would place a multi-story building on the current Building 25 and 25A location, near the geographical center of the Berkeley Lab site. Buildings 25 and 25A and associated ancillary buildings would be demolished. Slope filling would be required as part of the site preparation. The building would consist of 32,000 gsf of computer space, with a high ceiling, and three additional floors to house office space, totaling up to 140,000 gsf. Electrical utilities and chillers would be located in a 24,000 gsf basement level; cooling towers would be placed on the roof. Electrical power would be extended from the Grizzly Peak substation.

Detailed description of these alternatives and their comparative merits are presented in **Section 6.0** of this EIR. **Table 6.0-1, Summary Comparison of CRT Project Alternatives**, presents a comparison of the environmental impacts of each alternative to those that are expected to result from the proposed project.

Based on the analysis presented in the EIR, Alternative 2, Low Profile Design, was selected as the Environmentally Superior Alternative (see **Section 6.0** of this EIR).

2.8 ISSUES TO BE RESOLVED/AREAS OF CONTROVERSY

This EIR addresses environmental issues associated with the proposed project that are known to the lead agency or were raised by other public agencies or interested parties during the EIR scoping process. Comment letters and the transcript of the scoping meeting are on file with LBNL. More comprehensive descriptions of issues raised during project scoping are presented in the appropriate environmental analysis section of this EIR. Following is a listing of issues raised in the scoping comments received:

- Past landslides in the project vicinity should be analyzed and likelihood of future landslides should be addressed. The EIR should address the potential for LBNL development to increase the likelihood of landslides (*see Section 4.5, Geology and Soils*);
- The probability of an earthquake on the Hayward fault should be discussed and analyzed (*see Section 4.5, Geology and Soils*);
- Aging roads, sewers, culverts and infrastructure to serve the hill site at buildout (*see Section 4.13, Utilities, Service Systems and Energy and Section 4.12, Transportation and Traffic*);
- Strawberry Canyon is alleged to have active faults evidenced by the location of epicenters of earthquakes on the Berkeley Lab site. A discussion of the project site's location in an Alquist-Priolo Earthquake Fault Zone should be included (*see Section 4.5, Geology and Soils*);
- The EIR should consider impacts to Cafeteria Creek and its implications to the watershed (*see Section 4.7, Hydrology and Water Quality*);
- The LBNL site is within an area of high fire danger and the project would require vegetation removal to reduce fire danger (*see Section 4.6, Hazards and Hazardous Materials*);
- The EIR should address emergency evacuation procedures for LBNL personnel (*see Section 4.6, Hazards and Hazardous Materials*);
- Contaminants from LBNL under upset conditions can enter surface and groundwater and can adversely affect Strawberry Creek and the Bay (*see Section 4.7, Hydrology and Water Quality*);
- The Berkeley Lab should evaluate the extent of Lennert Aquifer on the LBNL site. The EIR should include a discussion of the project's effect on hydraugers and groundwater in the project area (*see Section 4.7, Hydrology and Water Quality*);

- The Berkeley Lab should evaluate impact on a Strawberry Canyon cultural landscape (see **Section 4.4, Cultural Resources**);
- The EIR should discuss carbon emissions associated with tree removal from the project site and Strawberry Canyon (see **Section 4.2, Air Quality**);
- The use of public transit should be emphasized as a way to conserve energy (see **Section 4.12, Transportation and Traffic**);
- The East Bay Municipal Utility District (EBMUD) indicated that it proposes to build a new water storage tank near the project site and that the cumulative impacts of that project should be considered in this EIR (see **Section 5.0, Cumulative Impacts**);
- The EIR should address the cumulative impact of past LBNL development combined with the current projects on human and ecological health and safety (see **Section 5.0, Cumulative Impacts**);
- Roadways in Strawberry Canyon are already overburdened with traffic and would be more hazardous with the addition of project traffic and large construction trucks from the various projects, especially during an emergency (see **Section 4.12, Transportation and Traffic**);
- Cumulative construction activities, including the Stadium project, and intensification of land uses in the project area could affect quality of life (see **Section 5.0, Cumulative Impacts**); and
- Alternative locations for the proposed project with fewer potential impacts related to aesthetics, biological resources, cultural resources, geology and soils, population and housing, and traffic should be considered. Sites specifically identified in the scoping comments include the UC Berkeley Richmond Field Station, the former Alameda Air Base, the former Mare Island Shipyard in the City of Vallejo, the former Hunters Point Shipyard in the City of San Francisco, and locations in Merced and Nevada (see **Section 6.0, Alternatives**).

The following areas of controversy were raised during the scoping process for this project that do not relate to the environmental impacts of the proposed project and therefore are not discussed in this EIR. According to various commenters:

- A one-year moratorium should be implemented on development at LBNL to analyze projected growth and clean up of previous hazardous material releases.

*For a discussion of clean-up of previous hazardous materials releases, please see the 2006 LRDP EIR, Section IV.F. The environmental effects of the projected growth at the Berkeley Lab are evaluated in **Section 5.0, Cumulative Impacts**.*

- The EIR should address the global implications of supplying energy to facilities.

Evaluation of global impacts is outside the scope of this EIR. The commenter's view is noted.

**Table 2.0-1
Summary Table of Significant Impacts, Mitigation Measures, and Level of Significance after Mitigation**

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.1 Aesthetics			
Impact VIS-1		Mitigation Measure VIS-1	
Construction activities associated with the project would create temporary aesthetic nuisances for adjacent land uses.	Potentially Significant	LBNL and its contractors shall minimize the use of on-site storage and when necessary store building materials and equipment away from public view and shall keep activity within the project site and laydown areas.	Less than Significant
Impact VIS-2		Mitigation Measure	
The proposed project could alter views of the LBNL site but would not result in a substantial adverse effect to a scenic vista or substantially damage scenic resources.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact VIS-3		Mitigation Measure	
The proposed project would alter the existing visual character of the Laboratory site but would not substantially degrade the existing visual character and quality of the site and its surroundings.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact VIS-4		Mitigation Measure	
The proposed project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	Less than Significant	No project-level mitigation measure required.	Less than Significant
4.2 Air Quality			
Impact AIR-1		Mitigation Measure	
Construction of the proposed project would generate short-term emissions of fugitive dust and criteria air pollutants that would not adversely affect local air quality in the vicinity of the construction site.	Less than Significant	No project-level mitigation measure required.	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.2 Air Quality (continued)			
Impact AIR-2		Mitigation Measure	
The proposed project would generate long-term operational emissions of criteria pollutants from increases in traffic and stationary and area sources that would not adversely affect air quality.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact AIR-3		Mitigation Measure	
The proposed project would increase carbon monoxide concentrations at busy intersections and along congested roadways in the project vicinity but would not expose sensitive receptors to substantial pollutant concentrations.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact AIR-4		Mitigation Measure	
The proposed project would not create objectionable odors affecting a substantial number of people.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact AIR-5		Mitigation Measure	
The proposed project would not expose maximally exposed individuals to cancer risks exceeding 10 in 1 million.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact AIR-6		Mitigation Measure	
The proposed project would not generate ground level concentrations of non carcinogenic toxic air contaminants that would result in a Hazard Index greater than 1.0 for the maximally exposed individual.	Less than Significant	No project-level mitigation measure required.	Less than Significant
4.3 Biological Resources			
Impact BIO-1		Mitigation Measure	
Construction of the proposed project would result in the permanent removal of 2.25 acres of vegetation.	Less than Significant	No project-level mitigation measure required.	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.3 Biological Resources (continued)			
Impact BIO-2		Mitigation Measure	
The proposed project would not result in indirect adverse effects to nearby creeks and seeps subject to U.S. Army Corps of Engineers (ACOE) and the California Department of Fish and Game (CDFG) jurisdiction and also considered to be sensitive plant communities and habitats.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact BIO-3		Mitigation Measure	
The proposed project would not adversely affect special-status nesting birds (including raptors) such that nests are destroyed, they abandon their nests, or that their reproductive efforts fail.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact BIO-4		Mitigation Measure	
Removal of trees and other proposed construction activities during the breeding season would not result in direct mortality of special-status bats. In addition, construction noise could cause maternity roost abandonment and subsequent death of young.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact BIO-5		Mitigation Measure	
Construction of the proposed project would not result in take or harassment of Alameda whipsnake.	Less than Significant	No project-level mitigation measure required.	Less than Significant
4.4 Cultural Resources			
Impact CUL-1		Mitigation Measure	
The proposed project would not cause a substantial adverse change in the significance of a historical resource as defined in §15064.5.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact CUL-2		Mitigation Measure	
The proposed project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.	Less than Significant	No project-level mitigation measure required.	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.4 Cultural Resources (continued)			
Impact CUL-3		Mitigation Measure	
The proposed project would not disturb any human remains, including those interred outside of formal cemeteries.	Less than Significant	No project-level mitigation measure required.	Less than Significant
4.5 Geology and Soils			
Impact GEO-1		Mitigation Measure	
The proposed project would construct a research facility within the Hayward Fault zone but would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death due to rupture of the Hayward Fault.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact GEO-2		Mitigation Measure	
The proposed project would expose people and structures to substantial adverse effects related to seismic ground shaking.	Potentially Significant	In addition to damage assessment of the CRT building structural elements (which is covered in the LBNL Master Emergency Program Plan), assessment of stormwater conveyance systems and hydromodification vaults shall be conducted by the Damage Assessment Team following earthquakes strong enough to cause damage.	Less than Significant with Mitigation
Impact GEO-3		Mitigation Measure	
The proposed project would not expose people and structures to substantial adverse effects associated with seismic-related liquefaction or landslides.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact GEO-4		Mitigation Measure	
The proposed project would not result in substantial soil erosion or loss of topsoil.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact GEO-5		Mitigation Measure	
The proposed project is not located on a geologic unit that may be unstable or could become unstable as a result of the project.	Less than Significant	No project-level mitigation measure required.	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.5 Geology and Soils (continued)			
Impact GEO-6		Mitigation Measure	
The CRT building would not be located on expansive soils.	Less than Significant	No project-level mitigation measure required.	Less than Significant
4.6 Hazard and Hazardous Materials			
Impact HAZ-1		Mitigation Measure	
The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires.	Less than Significant	No project-level mitigation measure required.	Less than Significant
4.7 Hydrology and Water Quality			
Impact HYDRO-1		Mitigation Measure HYDRO-1	
Development of the project site would increase the area of impervious surfaces (i.e., pavements and hardscapes, building roofs, and compacted soil surfaces) and would result in increased peaks and duration of stormwater flows, potentially contributing to erosion and/or siltation in Strawberry Creek.	Potentially Significant	Using the Bay Area Hydrology Model, calculations shall be provided following approval of the final project design to show that the proposed hydromodification vaults are sized appropriately to control flows such that 'flow duration control' is provided between 10-percent of the two-year recurrence storm and the 10-year recurrence storm.	Less than Significant
Impact HYDRO-2		Mitigation Measure HYDRO-2	
Development of the site would alter surface drainage patterns on the site and could result in increased peak flows and induce flooding in downstream reaches.	Potentially Significant	The hydromodification vaults or stormwater pipe system shall be oversized to allow detention of peak flows for the 25-, 50- and 100-year design storms and release at a rate no greater than the pre-development condition, or equivalent separate facilities will be incorporated to provide such control. Final design calculations showing no increases in peak runoff for the 25-, 50-, and 100-year events will be provided to and reviewed by LBNL staff upon finalization of the project design.	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.7 Hydrology and Water Quality (continued)			
Impact HYDRO-3		Mitigation Measure	
Project construction would not result in increased erosion and sedimentation, the potential release of chemicals to stormwater, or a temporary increase in turbidity or decrease in water quality in surface waterways.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact HYDRO-4		Mitigation Measure HYDRO-4	
Stormwater runoff from the proposed driveway and other impervious surfaces could potentially contribute to long-term pollutant discharges to surface waters, including Cafeteria Creek, Strawberry Creek, and the Bay.	Potentially Significant	<p>Mitigation Measure HYDRO-4a: An in-line pollution prevention device (such as a Continuous Deflective Separation unit or Stormceptor) shall be installed within the storm drain system to control sediment and floatables from the access driveway and loading dock area in the northern portion of the project site prior to release of stormwater to the storm drain at Cyclotron Road.</p> <p>Mitigation Measure HYDRO-4b: If feasible, vegetated swales or a stormwater garden shall be incorporated into the project to maintain water quality of roof runoff and avoid exceeding water quality objectives prior to discharge to creeks. LBNL shall provide calculations showing that design of these features meets recognized criteria for design of water quality Best Management Practices (BMPs). Should it be determined that appropriately sized vegetated swales are not feasible, then alternative Regional Water Quality Control Board-approved methods of treating stormwater runoff, such as in-line pollution prevention devices or infiltration galleries, shall be incorporated into the project. All water quality treatment and source controls shall be summarized in the project-specific Storm Water Pollution Prevention Plan (SWPPP), which will be available to regulatory agencies for inspection.</p>	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.8 Land Use and Planning			
Impact LU-1		Mitigation Measure	
The proposed project would not conflict with the applicable land use plan or policy (i.e., 2006 LBNL LRDP, and 2006 LBNL Design Guidelines adopted for the purpose of avoiding or mitigating an environmental effect.	Less than Significant	No project-level mitigation measure required.	Less than Significant
4.9 Noise			
Impact NOISE-1		Mitigation Measure	
Construction activities would temporarily elevate noise levels at the project site and surrounding areas.	Potentially Significant	None available.	Significant and Unavoidable
Impact NOISE-2		Mitigation Measure	
Temporary vibration impacts related to construction activities would not cause a significant impact.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact NOISE-3		Mitigation Measure	
Vehicular traffic associated with the CRT project would result in an incremental, but imperceptible, long-term increase in ambient noise levels.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact NOISE-4		Mitigation Measure	
The operation of heating, ventilating, and air conditioning equipment at the CRT site would not result in a substantial long-term increase in ambient noise levels.	Less than Significant	No project-level mitigation measure required.	Less than Significant
4.10 Population and Housing			
Impact POP-1		Mitigation Measure	
The proposed project would not induce substantial population growth, either directly or indirectly.	Less than Significant	No project-level mitigation measure required.	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.11 Public Services			
Impact PUB-1		Mitigation Measure	
The proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives, the construction of which could cause significant environmental impacts.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact PUB-2		Mitigation Measure	
The proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities in order to maintain acceptable service ratios, response times, or other performance objectives, the construction of which could cause significant environmental impacts.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact PUB-3		Mitigation Measure	
The proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities in order to maintain acceptable service ratios or other performance objectives, the construction of which could cause significant environmental impacts.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact PUB-4		Mitigation Measure	
The proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered park or recreational facilities in order to maintain acceptable service ratios or other performance objectives, the construction of which could cause significant environmental impacts.	Less than Significant	No project-level mitigation measure required.	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.11 Public Services (continued)			
Impact PUB-5		Mitigation Measure	
The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated.	Less than Significant	No project-level mitigation measure required.	Less than Significant
4.12 Transportation and Traffic			
Impact TRANS-1		Mitigation Measure	
The proposed CRT project would not cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system under the Near-Term conditions.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact TRANS-2		Mitigation Measure	
The proposed CRT project would result in increases in transit ridership.	Less than Significant		Less than Significant
Impact TRANS-3		Mitigation Measure	
The proposed CRT project would result in increased parking demand that may exceed the available parking supply.	Less than Significant		Less than Significant
Impact TRANS-4		Mitigation Measure TRANS-4	
The proposed CRT project would potentially result in increased hazards to pedestrians or bicyclists or conflicts with adopted policies, plans, or programs promoting walking or bicycling.	Potentially Significant	Final design of the CRT building shall provide a minimum of 32 bicycle parking spaces to further encourage bicycling and walking to the site.	Less than Significant with Mitigation
Impact TRANS-5		Mitigation Measure TRANS-5	
The construction of the proposed CRT project would temporarily and intermittently result in impacts on vehicles, pedestrians, or bicyclists, and parking.	Less than Significant	LBNL shall include the following in the CTMP prepared for the proposed project: <ul style="list-style-type: none"> For trucks hauling fill material internal to the LBNL site, trucks should use internal truck routes within the LBNL site to minimize disruption to vehicle, bicycle, and pedestrian circulation and parking. Consider stacked parking within the LBNL site or off-site parking for construction workers to minimize parking demand. 	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.13 Utilities, Service Systems, and Energy			
Impact UTILS-1		Mitigation Measure	
Implementation of the CRT project would not exceed wastewater treatment requirements of the applicable RWQCB and would not require an expansion of the East Bay Municipal Utility District (EBMUD) wastewater treatment plant or an expansion of the City's sewer conveyance facilities.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact UTILS-2		Mitigation Measure	
The proposed project would result in an increase in storm water flows but would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact UTILS-3		Mitigation Measure	
Implementation of the proposed CRT project would increase the demand for water but could be served by existing resources. The project-related demand for water supply would not result in the need for new or upgraded water facilities.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact UTILS-4		Mitigation Measure	
The proposed project would result in the need for additional chilled water facilities, the construction and operation of which would not result in a significant environmental impact.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Impact UTILS-5		Mitigation Measure	
Implementation of the proposed CRT project would increase the demand for electricity and natural gas but would not result in the expansion of existing or construction of new electrical and natural gas facilities.	Less than Significant	No project-level mitigation measure required.	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
5.0 Cumulative Impacts			
Cumulative Impact VIS-1		Mitigation Measure	
Construction activities associated with the proposed project, in conjunction with other near-term development, would not substantially affect visual resources.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact VIS-2		Mitigation Measure	
The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not substantially affect visual resources.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact AIR-1		Mitigation Measure	
The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact AIR-2		Mitigation Measure	
Although the proposed project would result in greenhouse gas emissions, its contribution to the significant cumulative impact associated with greenhouse gas emissions would not be cumulatively considerable.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact AIR-3		Mitigation Measure Cumulative AIR-3	
<u>Even though overall cumulative impacts will decrease over time, the proposed project would make some incremental contribution to cumulative cancer risk impacts associated with future development of LBNL and UC Berkeley.</u> The proposed project would not result in a cumulatively considerable contribution to cumulative cancer risk impacts associated with future development of LBNL and UC Berkeley.	<u>Potentially Significant</u> Less than Significant	<u>Because most of the cancer risk from TACs is due to diesel particulate emissions, measures to reduce the risk (beyond regulations already in place that will substantially reduce diesel particulate emissions in the next 20 years) shall include those measures that could reduce vehicle travel to and from the CRT project (LRDP Mitigation Measures TRANS-1d and TRANS-3), and those measures that reduce emissions from construction equipment and the project's emergency generator (LRDP Mitigation Measures AQ-1b and AQ-4a).</u> No project-level mitigation measure required.	<u>Significant and Unavoidable</u> Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
5.0 Cumulative Impacts (continued)			
Cumulative Impact AIR-4		Mitigation Measure	
The proposed project would not result in a cumulatively considerable contribution to cumulative non-cancer health impacts associated with future development of LBNL and UC Berkeley.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact BIO-1		Mitigation Measure	
The proposed project, in conjunction with other reasonably foreseeable near-term projects and long term development, would not result in a significant cumulative impact on biological resources.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact CUL-1		Mitigation Measure	
The proposed project, in conjunction with other reasonably foreseeable near-term and long-term development, would not result in a significant cumulative impact on cultural resources.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact GEO-1		Mitigation Measure	
The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would place new structures and introduce an increased population in a seismically active region.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact HAZ-1		Mitigation Measure	
The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would result in a cumulative impact related to evacuation along Centennial Drive during emergencies associated with a wildland fire or a major earthquake, but the project's contribution to the cumulative impact would not be considerable.	Less than Significant	No project-level mitigation measure required.	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
5.0 Cumulative Impacts (continued)			
Cumulative Impact HYDRO-1		Mitigation Measure	
The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not result in a significant cumulative impact on surface water resources.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact LU-1		Mitigation Measure	
The proposed project, in conjunction with other reasonably foreseeable near-term and long-term development, would not involve a significant cumulative impact related to land use.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact NOISE-1		Mitigation Measure	
Near-term development in the vicinity of the project site would not cause a significant cumulative increase in exterior noise levels during construction.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact NOISE-2		Mitigation Measure	
The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not result in a significant cumulative permanent increase in ambient noise levels.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact POP-1		Mitigation Measure	
The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not result in a significant cumulative impact on population or housing.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact PUB-1		Mitigation Measure	
The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not result in a significant cumulative demand for public services.	Less than Significant	No project-level mitigation measure required.	Less than Significant

Environmental Topic and Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
5.0 Cumulative Impacts (continued)			
Cumulative Impact TRANS-1		Mitigation Measure	
The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would degrade intersection levels of service.	Potentially Significant	Further mitigation is not feasible.	Significant and Unavoidable
Cumulative Impact TRANS-2		Mitigation Measure	
Construction traffic associated with the proposed project and other near-term projects would not result in significant congestion on city streets.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact TRANS-3		Mitigation Measure	
The proposed project, in conjunction with other reasonably foreseeable near-term and long-term development, would not substantially affect transit, parking, or pedestrian and bicycle circulation.	Less than Significant	No project-level mitigation measure required.	Less than Significant
Cumulative Impact UTILS-1		Mitigation Measure	
The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not result in a significant cumulative demand for utilities and service systems.	Less than Significant	No project-level mitigation measure required.	Less than Significant

5.0 CUMULATIVE IMPACTS

5.1 INTRODUCTION

This chapter of the EIR presents the near-term and long-term cumulative impacts of the proposed project. Numerous scoping comments were received expressing concern regarding the cumulative construction traffic impacts from the concurrent construction of the proposed project and other construction projects, in this portion of the city of Berkeley. The cumulative traffic and noise impacts from construction activities associated with other proposed or planned projects that would be under construction at the same time as the proposed project are analyzed in this section.

5.2 CUMULATIVE IMPACT ANALYSIS

California Environmental Quality Act (CEQA) requires that EIRs discuss cumulative impacts of the proposed project, and that the analysis reflect the severity of the impacts and the likelihood of their occurrence. The cumulative discussion is guided by the standards identified in Section 15355 of the *CEQA Guidelines*:

Cumulative impacts refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

- (a) The individual effects may be changed resulting from a single project or a number of separate projects;
- (b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future project. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Furthermore, Section 15130(a) of the *CEQA Guidelines* states that a “cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.” Section 15130 of the *CEQA Guidelines* provides direction regarding cumulative impact analysis as follows:

- An EIR should not discuss cumulative impacts that do not result, in part, from the proposed project;
- A lead agency may determine that an identified cumulative impact is less than significant, and shall briefly identify facts and analysis in the EIR supporting its determination;

- A lead agency may determine a project's incremental effect is not cumulatively considerable and, therefore, is not significant and shall briefly describe in the EIR the basis of its determination; and
- A lead agency may determine a project's cumulatively considerable contribution to a significant cumulative impact may be rendered less than cumulatively considerable and, therefore, residually not significant, if the project implements or funds its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

Therefore, the discussion of cumulative impacts in this EIR evaluates whether the cumulative impacts of the project will be significant when considered in combination with the effects of past, present, and reasonably foreseeable projects, and whether the project would make a cumulatively considerable contribution to those cumulative impacts that are determined to be significant.

CEQA Guidelines Section 15130(b) presents two possible approaches for considering past, present, and reasonably foreseeable projects. Either of the following approaches may be used:

- A list of past, present, and reasonably foreseeable projects; or
- A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which describe or evaluated regional or area-wide conditions contributing to cumulative impacts.

This EIR uses both of these methods. The near-term analysis is based on a list of reasonably foreseeable projects whereas the long-term cumulative analysis is based on anticipated growth at Lawrence Berkeley National Laboratory (LBNL) envisioned under the LBNL 2006 Long Range Development Plan (LRDP), growth of the campus under the UC Berkeley 2020 LRDP, and growth under the City of Berkeley General Plan, and the City of Oakland General Plan.

5.3 NEAR-TERM CUMULATIVE PROJECTS

The projects listed in **Table 5.0-1, Near-Term Cumulative Projects**, below were included in the near-term cumulative analysis for the proposed project. The near-term analysis focuses on impacts that could occur from planned projects that are expected to be under construction between 2007 through 2012. This period coincides with the construction period of the proposed project, and therefore, the focus of the near-term cumulative impact analysis is potential cumulative impacts from the simultaneous construction of the listed projects, especially impacts related to construction traffic and noise. Note that these near-term projects are also considered in the evaluation of long-term cumulative impacts.

**Table 5.0-1
Near-Term Cumulative Projects**

Jurisdiction/Lead Agency	Approximate Period of Construction
LBNL	
Helios Energy Research Facility	April/May 2008–August 2010
Guest House	November 2007–February 2009
CRT	April 2008–November 2010
Seismic Upgrade-Phase I	April 2009–November 2010
Advanced Light Source USB Project	March 2008–September 2009
Building 77 Rehabilitation	September 2007–November 2008
Bevatron Demolition	April 2008–June 2011
Building 6 Seismic Upgrade	February 2007–June 2010
UC Berkeley	
Warren Hall Replacement/Biomedical and Health Sciences Building	January 2007–December 2012
CITRIS Headquarters/Davis Hall North Replacement	August 2004–January 2009
Student Athlete High Performance Center ²	December 2007–December 2010
Clark Kerr Campus Renovation and Utilities	January 2008–May 2012
City of Berkeley	
1885 University Avenue	2007–2008
2200 Oxford Street	2007–2008
161 Panoramic Way	2007–2008
East Bay Municipal Utility District	
Strawberry Canyon Water Storage Tank ¹	September 2009–September 2011

Source: Personal communication with LBNL Environmental Planning; UC Berkeley Environmental Planning; City of Berkeley Planning Department, August 2007.

¹ EBMUD has indicated that it is considering locating a 2.6 to 5.8 million gallon water reservoir on one of three potential sites in Strawberry Canyon, two of which are on LBNL land and one of which is on UC Berkeley land.

² Construction associated with the retrofit of the stadium is not expected to occur during the period when the CRT Project would be under construction.

5.3.1 LBNL Near-Term Projects

Guest House

LBNL proposes to construct and operate a 25,000-gross-square-foot (gsf) Guest House that would range in height between 2.5 and 4 stories. The proposed Guest House would include 60 guest rooms, common spaces, a reception area, storage areas, an outdoor patio area, and access facilities, including stairwells and Americans with Disabilities Act (ADA) compliant ramps. The proposed project would be located near the center of the LBNL main hill site between Buildings 2 and 54 and accessible via Lawrence Road.

The Guest House would address a lack of convenient, affordable, and short-term accommodations on the LBNL campus for faculty, post doctoral associates, students, and other visitors to affiliated UC Berkeley science facilities.

Helios Energy Research Facility Project

LBNL proposes to construct the Helios Energy Research Facility in the southeastern portion of LBNL. It would construct an approximately 160,000 gsf, 89-foot-high research facility, an access road, and a parking area on an approximately 6-acre site. The project would be constructed west of the Molecular Foundry building, near the existing LBNL security fence line, on both LBNL and UC Berkeley land. The proposed building would house research programs focused primarily on solar, alternative and renewable energy sources.

Seismic Upgrade Phase 1

This is an on-going project to perform seismic upgrades to LBNL structures, including Buildings 50 and 74, in order to improve the structural performance of these buildings in a major seismic event. This project will include making reinforcements to structural bracings and sheer walls. Seismic Phase I activities will take place over approximately 12 months and will involve relatively small numbers of on-site workers and construction trucks.

Advanced Light Source USB Project

The Advanced Light Source building is slated to have a User Support Building (USB) constructed for the benefit of on-site users. This proposed three-story, approximately 30,000 gsf building would include assembly space, support laboratories, and offices. This building would be located at the site of Building 10, which is obsolete and would be demolished. Demolition and construction would take place between early 2008 and mid 2010.

Building 77 Rehabilitation

The rehabilitation of Buildings 77 and 77A includes replacement of the roof of Building 77; upgrade of various utility systems in both buildings; addition of an interior crane to Building 77A; and construction of a small nearby building to house chillers, a cooling tower, boilers, and associated equipment. The project is expected to be completed by winter 2008.

Bevatron Demolition

LBNL proposes to demolish the Bevatron building (Building 51 and 51A) due to the age and poor seismic condition of the facility. Currently, there are no plans for redevelopment of the site. Demolition activities are expected to extend from 2008 to 2011.

Building 6 Seismic Upgrade

The Building 6 Seismic Upgrade Project will involve the rehabilitation of the Advanced Light Source dome structure to a “good” seismic rating, as defined by the University of California Seismic Safety policy. This project is expected to be completed during the summer of 2010.

5.3.2 UC Berkeley Near-Term Projects

The following projects are either currently under construction or proposed for construction on the UC Berkeley campus between 2007 and 2010.

Warren Hall Replacement/Biomedical and Health Sciences Building

This project would demolish Warren Hall, which is located at the western end of the UC Berkeley campus. The building is approximately 52 years old, was rated as “poor” for seismic safety, and was not seen as suitable for retrofit. Demolition is scheduled to begin in early 2008. In its place, the Li Ka Shing Center for Biomedical and Health Sciences would be constructed. The new facility would maintain the same approximate footprint as Warren Hall and would have 5 aboveground levels and one underground level.

CITRIS Headquarters/Davis Hall North Replacement

The demolition of Davis Hall North, located in the northeast section of the Berkeley campus near the intersection of Hearst and LeRoy Avenues, began at the end of August 2004 to make way for the headquarters for the Center for Information Technology Research in the Interest of Society (CITRIS), one of the California Institutes for Science and Innovation. CITRIS was established to sponsor collaborative information technology education and research that will ultimately provide solutions to social and commercial problems affecting the quality of life of all Californians and others around the world. The new building includes flexible teaching and research facilities, a center for distance learning, and a state-of-the-art nanofabrication laboratory. The new building will be located on the same site as Davis Hall North with two floors underground and five floors above.

Student Athlete High Performance Center

Planning and construction of the Student Athlete High Performance Center (SAHPC) facility are the first phase of the project to make seismic corrections and improvements to California Memorial Stadium. The SAHPC would provide approximately 135,000 gross square feet of new program space for the students, staff, and programs currently using California Memorial Stadium daily. Currently in design, the proposed building is a two-story building, set back into the sloping landscape west of California Memorial Stadium; its highest elevation would be approximately 410 feet above sea level, level with the base of the existing west wall of California Memorial Stadium. The project would also create a pedestrian plaza on the new building's roof, at roughly the same elevation as the existing perimeter road at the base of the stadium. The plaza would provide space for game-day and year-round gatherings. The SAHPC begins seismic strengthening of the base of the existing west wall of the stadium, replaces and prunes existing trees on the west side of the stadium, and improves the landscape in the area. The project would also improve pedestrian access and service routes into the stadium. Construction is planned to take place between December 2007 and December 2010.

Clark Kerr Campus Renovation and Utilities

A two-phase planned renovation and utility upgrade is planned for the Clark Kerr Campus of UC Berkeley. Both phases of renovation include renewal of sanitary and storm sewers, extension of fire lines and upgrade of water mains, seismic retrofit, electrical repair, telecommunication system repair, and replacement of gas mains. All work is expected to be completed by May 2012.

5.3.3 Other Proposed/Planned Near-Term Projects

Four projects are proposed or planned in the southern portion of the City of Berkeley and northern Oakland in the near term.

1885 University Avenue

The project applicant proposes to construct a residential apartment complex with ground floor commercial uses on an approximately 43,750-square-foot site located at 1885 University Avenue in the city of Berkeley. The site contains an existing 20,375-square-foot single-story commercial building and approximately 45 parking spaces. An auto parts store occupies 10,100 square feet of space in the southern portion of the commercial building. The remainder of the commercial space is vacant. The project would demolish the existing building, parking lot, and other improvements on the property and replace them with a new mixed-use project that would span the entire parcel. The project proposes a total of 156 rental dwelling units and approximately 14,390 square feet of retail floor area in one mixed-use structure

comprised of two separate residential buildings built on a common basement and ground floor podium containing commercial uses and two separate parking garages with a total of 157 parking spaces. Construction of the proposed project is anticipated to begin in 2007 and would extend over a period of approximately two years.

2200 Oxford Street

The proposed development project includes three main components: (1) an underground parking garage, (2) an office and conference facility called the David Brower Center, and (3) an affordable housing facility with ground-floor retail called Oxford Plaza. The site has an area of about 1.06 acres (46,300 square feet). The site is currently a city-owned parking lot.

161 Panoramic Way

The proposed project is a new wood-frame single-family dwelling with 1,460 square feet of floor area and two stories on a 3,295-square-foot lot. The project site is a steep lot with slopes ranging from 1:1 to 1:1.5. Construction will include drilled cast-in-place pier foundation.

Strawberry Canyon Water Storage Tank

A 2.6 to 5.8 million gallon water storage tank is proposed by East Bay Municipal Utility District in Strawberry Canyon, to be located at one of three alternative locations. Two of the potential locations are in the southern and eastern portions of LBNL, and the third location is to the southeast of the UC Berkeley Botanical Gardens.

5.4 LONG-TERM CUMULATIVE PROJECTS

The long-term cumulative analysis in this EIR evaluates the cumulative effects of growth of LBNL under the LBNL 2006 LRDP, growth of the campus under the UC Berkeley 2020 LRDP (including the Southeast Campus Integrated Projects), and the Oakland and Berkeley General Plans (primarily growth anticipated by the 2001 City of Berkeley General Plan EIR).

5.4.1 LBNL 2006 LRDP

The Regents certified the LBNL 2006 LRDP EIR and approved the LBNL 2006 LRDP in July 2007.¹ The LBNL 2006 LRDP envisions the construction of approximately 980,000 gross square feet (gsf) of

¹ Although the 2006 LRDP EIR is in litigation at this time, the 2006 LRDP is the land use planning document in effect for the Berkeley Lab and the growth of the Berkeley Lab under the 2006 LRDP is considered in the long term cumulative analysis presented in this EIR.

additional research and support space and demolition of up to 320,000 gsf of building space, for a net increase of 660,000 gsf of new research and support space. As a result, the total building space for the Berkeley Lab under the 2006 LRDP is 2,420,000 gsf. The 2006 LRDP projects that, through 2025, the on-site adjusted daily population (ADP) at the Berkeley Lab will increase to approximately 5,375, which is an increase of approximately 1,000 ADP over the 2003 baseline. The CRT and Helios Energy Research Facility projects are considered elements of the 2006 LRDP and are evaluated in this section for their cumulative impacts, along with impacts from other reasonably foreseeable development in the general vicinity of the project site.

5.4.2 UC Berkeley 2020 LRDP

The Regents certified the 2020 LRDP EIR and approved the UC Berkeley 2020 LRDP on January 20, 2005. The UC Berkeley 2020 LRDP and LRDP EIR project population increases of up to 12 percent (approximately 5,320 “heads”) and building space increases of up to 18 percent (approximately 2.2 million gsf) by the year 2020. The environmental analyses assumed that the maximum level of construction that was underway at the time the Existing Setting data were collected in 2002 and 2003 (approximately one million gsf of construction) would be underway at any one time within the Campus Park, Adjacent Blocks, Southside, and Hill Campus land use zones. Thus, the maximum level of construction anticipated under the UC Berkeley 2020 LRDP is reflected in the existing setting of the document.

With respect to new development in the Hill Campus portion of UC Berkeley, the 2020 LRDP EIR notes that a modest amount of development, 100,000 gross square feet of new building space and up to 100 housing units, is planned for the Hill Campus and this development would occur on sites proximate to previously developed Hill Campus facilities. The two areas that have been identified as potential housing sites consist of a 7.5 acre area near the intersection of Grizzly Peak Boulevard and Centennial Drive and a 5.5 acre area between Lawrence Hall of Science and the Silver Laboratory Addition. Both areas have previously been moderately to extensively disturbed in association with roadway and parking lot construction (UCB 2005).

In October 2006, UC Berkeley completed a Tiered, Focused EIR for the Southeast Campus Integrated Projects (SCIP), which include seismic and program improvements at the California Memorial Stadium, including a 158,000 gsf athletic training center and 102,000 gsf of additional new academic and support space at the stadium; construction of a parking structure and sports field at the current site of Maxwell Family Field; construction of an 186,000 gsf building linking the Law and Business schools; landscape improvements at the Southeast Campus and Piedmont Avenue; interior improvements at selected

buildings at the School of Law and the Haas Business School; and renovation and restoration of the Piedmont Avenue houses (five structures and site environs from 2222 to 2240 Piedmont Avenue).

In addition to seismic retrofit and new construction on the campus, the UC Berkeley 2020 LRDP also considered certain ongoing programs that would continue to be implemented on campus lands that could potentially result in environmental impacts. These include fire fuel reduction projects that are an element of the campus's Fire Management Program. At the present time, three fire fuel reduction projects are proposed on UC Berkeley's Hill Campus: (1) the Strawberry Canyon Fuel Management Project which includes the removal of approximately 10,000 re-sprouted eucalyptus stems in a 58-acre area in Strawberry Canyon above (northeast of) the Berkeley Lab over a period of three years; (2) the Claremont Canyon Fuel Management Project which includes the removal of approximately 12,000 eucalyptus trees in a 40-acre area; and (3) the Frowning Ridge Fuel Management Project which includes the removal of approximately 24,000 re-sprouted eucalyptus stems and pine trees in an 84-acre area located in Strawberry and Claremont canyons (UC Berkeley Office of Emergency Preparedness website 2007). All three projects have applied for federal funding from Federal Emergency Management Agency. All three projects would implement mitigation measures included in the UC Berkeley 2020 LRDP for impacts on biological resources and water quality.

5.4.3 City of Berkeley General Plan

The 2001 City of Berkeley General Plan allows for steady growth and development, but, given a lack of substantial undeveloped land in the City, this is expected to take place at a relatively even pace with an emphasis on infill development. Projections include a population increase of approximately 7,000 people (a roughly 6 percent increase), approximately 3,300 new household units (a roughly 8 percent increase), and approximately 3,700 new jobs (a roughly 5 percent increase) by the year 2020.

5.4.4 City of Oakland General Plan

The City of Oakland General Plan designates the land surrounding the Berkeley Lab as mostly Resource Conservation and a small portion, which encompasses the Panoramic Hill area, as Hillside Residential. Resource Conservation is a land use intended to identify, enhance, and maintain publicly-owned lands for the purposes of conserving and appropriately managing the area. Future development within this land use designation is limited by the City's General Plan policies, and any development must relate to the management of natural resources, public open space, or natural hazards. Buildings are not permitted under this land use designation unless the building is associated with land management. The Hillside Residential land use designation is designed to create, maintain, and enhance residential areas characterized by detached, single unit residential structures.

5.5 TOPICAL IMPACTS

5.5.1 Aesthetics

CRT Cumulative Impact VIS-1: Construction activities associated with the proposed project, in conjunction with other near-term development, would not substantially affect visual resources. (*Less than Significant*)

Construction of the near-term cumulative projects would involve building sites at the Berkeley Lab, UC Berkeley lands, and in the city of Berkeley. While there are no officially designated scenic vistas for the city of Berkeley, the city of Oakland, UC Berkeley, or the Berkeley Lab, the hillside areas of Strawberry Canyon offer extensive views of the San Francisco Bay and present a scenic landscape from lower elevations. As discussed under CRT Impact VIS-1, project construction would be visible from locations along public roadways, including University Avenue and Hearst Avenue. This work would entail the use of heavy equipment and could be most noticeable to local residents. This project-level impact would be potentially significant but reduced to a less than significant level with the proposed mitigation. This potential impact of the proposed project would not cumulate with the impacts from other near-term projects because all of the near-term projects proposed at LBNL (including the Helios Energy Research Facility project), UC Berkeley, and in the city of Berkeley would not form part of the scenic views that contain the project site. Therefore, there would not be a significant near-term cumulative effect related to construction activities.

Mitigation Measure: No project-level mitigation measure required.

CRT Cumulative Impact VIS-2: The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not substantially affect visual resources. (*Less than Significant*)

Lands northeast of the Berkeley Lab and farther eastward into the East Bay hills are managed by the East Bay Regional Park District (EBRPD). The EBRPD does not have plans to build large facilities. The city of Berkeley extends into the hill area adjacent to and north of the Berkeley Lab. City zoning for the hill area is single-family residential with a maximum floor area ratio of 0.4 for any given lot. In accordance with the City's latest General Plan, no large buildings would be developed in this area, and existing developed areas – which are largely built out – would be limited in the degree of new development that could occur. The areas within Oakland city limits near LBNL are designated Hillside Residential in the Oakland General Plan and zoned either Low Density or Single Family; significant new development is not expected to occur. UC Berkeley does not propose substantial new development on its Hill Campus, and much of the remaining surrounding area is park or open space land. Furthermore, all new development

on the Hill campus would be subject to the design provisions of the 2020 LRDP specific for the Hill Campus area and also to continuing Best Practices for the Hill Campus included in the 2020 LRDP EIR. The Final EIR for the UC Berkeley Southeast Campus Integrated Projects (SCIP) found that the SCIP would result in a significant unavoidable visual impact on the character of Gayley Road due to construction of a new parking structure and on views from Panoramic Hill due to improvements to Memorial Stadium (UC Berkeley 2006). However, due to the projects' location, the impact would be specific to the Integrated Projects analyzed in the SCIP EIR.

Given the above, little development beyond that proposed at Berkeley Lab under the 2006 LRDP is anticipated in the Oakland-Berkeley hills in the general area of LBNL in the long-term. Most of the other LBNL projects that are proposed at the present time would involve seismic retrofit and only the Guest House, Helios Energy Research Facility, and CRT projects would involve new construction. As discussed in CRT Impact VIS-2, the construction of the proposed project would not adversely affect the visual character of the site and its surroundings as seen from a limited area, including the Lawrence Hall of Science. The Helios Energy Research Facility and Guest House projects, although also located on the LBNL hillside, would not be visible from the same viewpoints as the proposed project. Therefore, a cumulative visual impact on visual character would not occur.

Furthermore, the extent of foreseeable development that would be constructed in areas that could be considered part of scenic vistas is considered minimal relative to the amount of open, available land. Therefore, there would be no significant cumulative effect on scenic vistas or visual character in the near-term or the long-term. Finally, there could be increased light and glare sources as a result of cumulative projects at the LBNL site. However, because all projects would comply with the LBNL 2006 LRDP design guidelines such as low-profile lighting, anti-glare coatings, and non-reflective surfaces, this impact would be reduced to a less than significant level for all projects. Therefore, there would not be a significant cumulative impact related to light and glare.

The fuel management projects proposed by UC Berkeley for the Strawberry and Claremont Canyons would remove non-native vegetation that poses a fire danger. The elimination of approximately 170 acres of predominantly eucalyptus re-sprouted stems and other non-native trees would be noticeable to nearby residents and recreational users in the area, but is not expected to cause a significant visual impact given the extent of surrounding open space and remaining vegetation, and the fact that native vegetation would reestablish. Furthermore, the fuel management projects are not proposed in areas that would be within the same viewshed as the CRT project, and therefore, although the proposed project would also remove some trees, it would not result in a cumulative impact on scenic views as a result of tree removal.

In summary, the proposed project, in conjunction with other development in the project area, would not result in a significant cumulative impact.

Mitigation Measure: No project-level mitigation measure required.

5.5.2 Air Quality

CRT Cumulative Impact AIR-1: **The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. (*Less than Significant*)**

According to the *BAAQMD CEQA Guidelines*, any project that would individually have a significant air quality impact would also have a significant cumulative air quality impact. As discussed in **Section 4.2** under CRT Impact AIR-2, emissions associated with operation of the proposed project would not exceed the BAAQMD-recommended operational thresholds of significance. Therefore, the project would not individually have a significant air quality impact.

For a project that does not individually have a significant air quality impact, the *BAAQMD CEQA Guidelines* recommend that a determination of cumulative impacts be based on an evaluation of the consistency of the project with the local general plan and of the general plan with the regional air quality plan. The latest U.S. EPA-approved regional air quality plan for this area is the *2005 Ozone Strategy*. If a project is proposed in a city or county with a general plan that is consistent with the *2005 Ozone Strategy* and the project is consistent with that general plan, the project would not have a significant cumulative impact.

To analyze if the proposed project is consistent with the *2005 Ozone Strategy*, the *BAAQMD CEQA Guidelines* recommends evaluating whether (1) the project provides buffer zone for odors and toxics, (2) the extent to which transportation control measures (TCM) are implemented, and (3) the consistency with the CAP's projections for vehicle miles traveled (VMT) and population. The *BAAQMD CEQA Guidelines* considers the development or presence of a buffer zone for odors and toxics as criteria for determining consistency with the *2005 Ozone Strategy*. The proposed project would maintain a 50-foot no-build zone from Blackberry Canyon as well as a 40-foot setback from adjacent structures to minimize any potential impact on adjoining neighborhoods. The nearest noise sensitive receptors located off the LBNL site are students who live in the Foothill Student Housing Complex located about 600 feet to the southwest of the project site. The nearest private residences are located approximately 600 feet to the west of the project site.

The proposed project is designed with numerous measures that support CAP TCMs specified in Table 5 of the *BAAQMD CEQA Guidelines*. The following discussion includes the applicable TCM and an analysis of the proposed project's consistency with these measures.

- TCM 1 – Support Voluntary Employer-Based Trip Reduction Programs: The proposed project would be supported by the LBNL shuttle system, which would transport employees from the UC Berkeley campus as well as the City of Berkeley, thereby reducing employee vehicle trips.
- TCM 9 – Improve Bicycle Access and Facilities: The proposed project would include bicycle racks to provide parking infrastructure for employees that bike to work.
- TCM 12 – Improve Arterial Traffic Management: The proposed project would only develop four additional parking spaces to provide disabled access to the CRT facility. By relying on existing parking, the proposed project would not encourage more vehicle trips to the region and avoid vehicle congestion.
- TCM 15 – Local Clean Air Plans, Policies and Programs (focus on site design to reduce single-occupancy trips): The proposed project would provide four parking spaces specifically designated for disabled access to the CRT facility. However, the proposed project would consist of 90 additional employees (135 employees would be transferred from the adjacent Building 50 Complex, which includes a parking lot); therefore, several of the new employees would utilize carpooling, alternate modes of transportation, and public transportation.
- TCM 19 – Pedestrian Travel: The proposed project can be accessed using the existing Seaborg stairs, which connect Cyclotron Road to the upper plaza.
- TCM 20 – Promote Traffic Calming Measures: The proposed project will not add additional parking spaces except for the four parking spaces for disabled access. Therefore, new employees associated with the proposed project would utilize alternate modes of transportation such as public transportation, walking, biking, or carpooling. Consequently, less vehicle traffic will be generated in the region due to the proposed project.

By developing fewer parking spaces than the number of persons associated with the proposed project, on-site parking would remain a limiting factor for driving to work, thereby minimizing VMT in the region.

As discussed above, the proposed project would be consistent with all of the criteria used to determine consistency with the *2005 Ozone Strategy*. In addition, all appropriate control measures would be implemented during construction to minimize the generation of fugitive dust. Long-term operational emissions associated with the proposed project would also be less than all thresholds of significance. Therefore, the proposed project would be considered consistent with the *2005 Ozone Strategy* and would not make a cumulatively considerable contribution to the cumulative impact on air quality in the region. This impact is considered less than significant.

Mitigation Measure: No project-level mitigation measure required.

CRT Cumulative Impact AIR-2: **Although the proposed project would result in greenhouse gas emissions, its contribution to the significant cumulative impact associated with greenhouse gas emissions would not be cumulatively considerable. (*Less than Significant*)**

The proposed project would generate greenhouse gas (GHG) emissions, which would contribute to potential cumulative impacts of GHG emissions on global climate. The GHG emissions associated with area and mobile sources were estimated using URBEMIS2007. URBEMIS2007 provides estimates of CO₂ emissions for area sources, including natural gas combustion and landscape maintenance. In addition, URBEMIS2007 also provides an estimate of CO₂ emissions from vehicle emissions associated with travel to and from the proposed project. The emissions of CO₂, the primary greenhouse gas associated with mobile and area sources estimated using URBEMIS2007 were adjusted to convert CO₂ emissions to GHG emissions on a carbon dioxide equivalent (CO₂E) basis:

- **Motor vehicles:** The annual CO₂ emissions associated with motor vehicle trips were multiplied by a factor based on the assumption that CO₂ represents 95 percent of the (CO₂E) emissions associated with passenger vehicles, which account for most of the project-related trips (U.S. EPA 2005).
- **Area sources (natural gas combustion):** The CO₂ emissions from natural gas consumption for water and space heating were adjusted based on emission factors for CO₂, CH₄, and N₂O for natural gas combustion from the U.S. EPA's *Compilation of Air Pollutant Emission Factors* (U.S. EPA 1998) and the global warming potential for each GHG.

A detailed summary of the greenhouse gas emissions associated with the proposed area and mobile sources is included in **Appendix 4.2**.

The GHG emissions (e.g., CO₂, methane) were estimated for the proposed cogeneration facility or emergency generator using emission factors from U.S. EPA's AP 42. The cogeneration engine GHG (i.e., CO₂ and methane) emission factors were obtained from U.S. EPA AP 42 (U.S. EPA 2000). No nitrous oxide emission factors are presented in AP 42 for natural-gas-fired engines, but these emissions are generally very small for fossil-fuel-fired equipment (much less than 1 percent on a CO₂ equivalent basis). Carbon dioxide emissions associated with the emergency generator also were calculated using emission factors from U.S. EPA's AP 42 (U.S. EPA 1996). No methane or nitrous oxide emission factors are presented in AP 42 for diesel-fired engines, but these emissions are generally very small from diesel-fired equipment (less than 1 percent on a CO₂ equivalent basis). The GHG emissions from stationary sources were added to the area and mobile source GHGs to calculate the annual GHG emissions associated with operation of the proposed project. The estimated annual GHG emissions associated with the proposed

project under the cogeneration facility and emergency generator scenarios are shown in **Table 5.0-2, Estimated Greenhouse Gas Emissions – CRT Facility with On-Site Cogeneration** and **Table 5.0-3, Estimated Greenhouse Gas Emissions – CRT Facility with Emergency Generator**, respectively.

Table 5.0-2
Estimated Greenhouse Gas Emissions – CRT Facility with On-Site Cogeneration

Emissions Source	GHG Emissions (Metric Tons CO₂E Per Year)
Area and Mobile Sources	450
Stationary Sources	14,908
Total GHG Emissions	15,358

Source: Impact Sciences, Inc. Emissions calculations are provided in *Appendix 4.2*.

Table 5.0-3
Estimated Greenhouse Gas Emissions – CRT Facility with Emergency Generator

Emissions Source	GHG Emissions (Metric Tons CO₂E Per Year)
Area and Mobile Sources	450
Stationary Sources	9.2
Total GHG Emissions	459.2

Source: Impact Sciences, Inc. Emissions calculations are provided in *Appendix 4.2*.

Under Section 15130 of the *CEQA Guidelines*, an EIR must discuss cumulative impacts if a project would have a cumulatively considerable effect on a resource, where “cumulatively considerable” is defined as “...the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (*California Environmental Quality Act Guidelines*).” However as Section 15064(h)(4) states, “The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable (*California Environmental Quality Act Guidelines*).”

To date, no quantitative emission thresholds or similar criteria have been established by state or local air quality agencies to evaluate the cumulative impact of a single project on global climate. In the absence of quantitative emissions thresholds, consistency with adopted programs and policies is used by many

jurisdictions to evaluate the significance of cumulative impacts. A project's consistency with the implementing programs and regulations to achieve the statewide GHG emission reduction goals established under Executive Order S-3-05 and AB 32 cannot yet be evaluated because they are still under development.

Individual projects under the 2006 LRDP must implement GHG emission reduction strategies through compliance with the UC Policy on Sustainable Practices and the guidelines for implementation of this policy. Emission reduction strategies instituted under this policy include practices related to green building design, clean energy, climate protection, transportation, operations, recycling and waste management, and environmentally preferable procurement. The project would comply with these requirements.

These requirements are similar to many of the measures that have been recommended to implement AB 32, and implementation of these sustainable practices will help to meet the goals and emissions reduction targets of AB 32.

Under the 2006 LRDP, numerous provisions are included that will substantially lessen LBNL's contribution to global climate change. The proposed project would encourage use of transit and alternative transportation modes (such as through implementation of LBNL's transportation demand management program), which could help reduce transportation-related GHG emissions, relative to what would otherwise occur. New construction at the CRT facility would also be required to meet UC Policy on Sustainable Practices, which would require new buildings to outperform California Code of Regulations Title 24 efficiency standards by at least 20 percent. This commitment to energy efficient design would further help to reduce future energy demand as well as reduce the project's contribution to regional GHG emissions.

The project also includes the removal of trees, largely consisting of non-native trees, as discussed in **Section 4.3**. This removal of trees, and vegetation removal associated with the near-term cumulative projects, would result in the loss of some carbon sequestration. The project includes, however, replacement plantings of native plant species to replace the removed trees, and this replacement planting would substantially lessen the project's contribution to any cumulative impact on carbon sequestration.

Based on this analysis, the proposed project would be developed in a fashion that would substantially lessen its contribution to GHG emissions and global climate change. The design strategies integrated into the CRT facility would assist California in meeting the goals of AB 32 and the Governor's Executive Order S-3-05. Accordingly, the project would substantially lessen its contribution to the cumulative

impact of GHG emissions, and the impact would thus not be cumulatively considerable. The impact would be less than significant.

Mitigation Measure: No project-level mitigation measures required.

CRT Cumulative Impact AIR-3: Even though overall cumulative impacts will decrease over time, the proposed project would make some incremental contribution to cumulative cancer risk impacts associated with future development of LBNL and UC Berkeley. ~~(Potentially Significant; Significant and Unavoidable)~~The proposed project would not result in a cumulatively considerable contribution to cumulative cancer risk impacts associated with future development of LBNL and UC Berkeley. (Less than Significant)

According to the BAAQMD CEQA Guidelines, any project that would individually have a significant air quality impact would also have a significant cumulative air quality impact. As discussed previously in **Section 4.2**, emissions of carcinogenic toxic air contaminants (TACs) associated with operation of the proposed project would not exceed the BAAQMD-recommended operational threshold of significance of 10 in one million. Therefore, the project would not individually have a significant impact related to human health. When taken into consideration with other carcinogenic TACs associated with planned growth under the LBNL 2006 LRDP and the UC Berkeley 2020 LRDP, the maximum impacts would exceed the 10-in-one-million threshold at some locations both on the LBNL site and in adjacent areas. The incremental risk from the proposed project would not change the calculated cancer risk level in a mathematically-significant sense (i.e., would not change the numbers reported in the 2006 LRDP) at any of the affected locations, but the proposed project would make some very small contribution to this cumulative air quality impact. This is explained in more detail below. ~~Also, there are several on-site and off-site areas where the risk impacts of carcinogenic TACs associated with full implementation of the LBNL 2006 LRDP and the UC Berkeley 2006 LRDP would exceed the 10 in one million CEQA cumulative threshold. However, combining the risks from the CRT project with the cumulative risks already estimated in these areas would not significantly change the calculated cancer risk level. In other words, the CRT project would not make a cumulatively considerable contribution to the future human health risk of the region.~~

As stated previously in **Section 4.2, Air Quality**, two options are being considered for providing the project with electrical power: one involving cogeneration units and one involving a backup generator. Using the lifetime excess cancer risks for the cogeneration option, which are at least two orders of magnitude higher than the risks for the backup generator option, the cancer risks at the maximally

exposed on-site and off-site receptors from the proposed project, as shown in **Table 4.2-10**, are 3 in one million and 1 in one million, respectively, which are well below the threshold of significance.

The cumulative impact from the TAC emissions and the proposed project's contribution to the cumulative impact were evaluated using the cumulative impacts analysis that LBNL prepared for and included in its 2006 LRDP EIR, as well as the results from the HHRA prepared for the CRT project. The HHRA prepared for the 2006 LRDP and LBNL's subsequent cumulative impacts analysis in the 2006 LRDP EIR identified on-site and off-site areas where the cumulative risk exceeded the CEQA significance criteria of 10-in-a-million risk. As well, using the cumulative impacts analysis that LBNL prepared and included in its 2006 LRDP EIR as the basis for considering the results from this HHRA, the air quality risks from the CRT Project for either option of electrical power would not make a cumulatively considerable contribution to the local human health risk, in part because of the location of the CRT building. This conclusion applies to both on-site and off-site locations and is not restricted to locations of maximum impact that were presented in the facility wide 2006 LRDP HHRA. That HHRA and LBNL's subsequent cumulative impacts analysis in the 2006 LRDP EIR identified on-site and off-site areas where the cumulative risk exceeded the CEQA significance criteria of 10 in a million risk. (There were no exceedances of the CEQA cumulative significance criteria of 1.0 determined by the comparable chronic hazard analyses.) Adding the CRT project risk values to the results at locations where cumulative risk values were shown to exceed a 10-in-a-million risk would generally affect only the third significant figure and would result in no greater than a 5 percent increase in risk. A representation of this conclusion is the area immediately southwest of the CRT project site between the Horseshoe parking lot and UC Berkeley Foothill student housing where the LBNL cumulative analysis for the 2006 LRDP EIR indicated that the lifetime excess cancer risk under the cogeneration unit configuration reached up to approximately 40-in-a-million (with LBNL activities accounting for about 95 percent of this value), yet the estimated risk from the CRT project would contribute about 0.3-in-a-million. This level of contribution would first affect the third significant figure in the cumulative risk calculation. Based on these findings, the cumulative impact of carcinogenic TAC emissions associated with the proposed project and growth under the 2006 LRDP would be less than significant.

The cumulative analysis in the 2006 LRDP EIR noted that the overall health risk will decrease over time, and has decreased in the region since 1995. The analysis also noted that LBNL's contribution to total lifetime cancer risk at any location would be small. Nevertheless, because the estimates showed that cumulative cancer risks would exceed the threshold at some locations, the 2006 LRDP EIR concluded that LBNL's contribution would be considerable.

The CRT project would not result in any incremental project-related increases in excess of the risk threshold, and the contribution of the project would be magnitudes smaller than the cumulative risk.

However, because the project would result in some TAC emissions that would contribute to the overall cumulative risk, this EIR considers the contribution to be considerable, and therefore the cumulative impact would be significant and unavoidable.

CRT Mitigation Measure Cumulative AIR-3: Because most of the cancer risk from TACs is due to diesel particulate emissions, measures to reduce the risk (beyond regulations already in place that will substantially reduce diesel particulate emissions in the next 20 years) shall include those measures that could reduce vehicle travel to and from the CRT project (LRDP Mitigation Measures TRANS-1d and TRANS-3), and those measures that reduce emissions from construction equipment and the project's emergency generator (LRDP Mitigation Measures AQ-1b and AQ-4a).~~No project-level mitigation measure required.~~

Significance after Mitigation: Even with implementation of these measures, the CRT project would still result in some incremental emissions that contribute to the cumulative impact, so the project's contribution to the cumulative impact cannot be reduced to a less-than-significant level.

CRT Cumulative Impact AIR-4: **The proposed project would not result in a cumulatively considerable contribution to cumulative non-cancer health impacts associated with future development of LBNL and UC Berkeley.**
(Less than Significant)

According to the BAAQMD CEQA Guidelines, any project that would individually have a significant air quality impact would also have a significant cumulative air quality impact. As discussed previously in **Section 4.2**, emissions of noncarcinogenic TACs associated with operation of the proposed project would not exceed the BAAQMD-recommended operational threshold of significance of a hazard index of 1.0. Therefore, the project would not individually have a significant non-cancer health impact. When taken into consideration with other noncarcinogenic TACs associated with existing operations and planned growth in the area (future development under the LBNL 2006 LRDP and the UC Berkeley 2020 LRDP), the maximum impacts would still not exceed the hazard index threshold of 1.0 as discussed below.

The non-cancer chronic hazard indices for the cogeneration option of providing electrical power are greater than the same indices for the backup generator option. For the cogeneration option, the indices at the maximally exposed on-site and off-site receptors as a result of the proposed project, as shown in **Table 4.2-12**, were 0.4 and 0.02, respectively, which are well below the threshold of significance. An HHRA was prepared to evaluate the human health impacts of Berkeley Lab growth under the 2006 LRDP. The 2006 LRDP HHRA indicated that the maximum chronic hazard indices at on-site and off-site receptors were 0.36 and 0.25 respectively. The highest chronic hazard index based on UC Berkeley 2020

LRDP growth was 0.13. While the locations of all three maximum impacts differed considerably, even if the maximum impacts were added together, the cumulative chronic health impact would remain below the threshold of 1.0. Thus, the proposed project would not result in a cumulatively considerable contribution to chronic health impacts in the local area.

Mitigation Measure: No project-level mitigation measure required.

5.5.3 Biological Resources

CRT Cumulative Impact BIO-1: **The proposed project, in conjunction with other reasonably foreseeable near-term projects and long term development, would not result in a significant cumulative impact on biological resources. (*Less than Significant*)**

Near-Term Cumulative Projects

Table 5.0.1 lists near-term projects which, if approved, would be implemented between 2007 and 2012. With the exception of the CRT and Helios Energy Research Facility projects, all other projects proposed on the Berkeley Lab site involve existing buildings and would not affect sensitive biological resources because the site of each project is already disturbed. Furthermore, all LBNL projects would implement 2006 LRDP mitigation measures to avoid or minimize short-term construction-phase impacts on biological resources. The CRT project would require the removal of approximately 64 blue gum eucalyptus, five coast live oak, two California bay, and one plum tree, and the Helios Energy Research Facility project would affect up to ~~128~~ 50 oak, redwood, and bay trees. Both projects would be located in areas that are determined to have highly suitable potential habitat for Alameda whipsnake.

With respect to the near-term-projects proposed on the UC Berkeley Campus, with the exception of the three fire fuel reduction projects, all of the near-term projects would be located in developed areas where sensitive biological resources would generally not be present. In compliance with the campus' 2020 LRDP, all UC Berkeley projects would be required to implement continuing Best Management Practices that would avoid or minimize impacts on sensitive biological resources. The three fire fuel reduction projects would involve the removal of approximately 44,000 re-sprouted eucalyptus stems, other non-native trees, and some pine trees over an area of approximately 170 acres located in Strawberry and Claremont canyons. All three projects would be located in areas that are determined to have moderate to highly suitable potential habitat for the Alameda whipsnake.

Near-term projects proposed within the city of Berkeley are within developed urban areas and would not disturb sensitive biological resources. With respect to the water storage tank proposed by EBMUD,

adequate information is not available at this time to characterize the environmental impacts of that project. However, based on preliminary review of the proposed sites under consideration for that project, it is anticipated that the project will require removal of existing natural vegetation, including trees.

As discussed in CRT Impact BIO-1, the proposed project would involve the removal of approximately 2.25 acres of existing vegetation, including up to 64 eucalyptus, 5 oak, and 2 bay trees. Therefore, the proposed project in conjunction with the Helios Energy Research Facility project, the three fire fuel reduction projects proposed by UC Berkeley, and the EBMUD water storage tank project would result in the removal of existing vegetation including native and non-native trees, and would entail ground-disturbing activities in areas determined to have moderate to highly suitable potential habitat for Alameda whipsnake. However, the cumulative impact from the implementation of these projects on biological resources would not be significant because each LBNL project would implement appropriate mitigation measures to avoid or minimize its impacts. The fire fuel reduction projects would be implemented generally outside the nesting season and would comply with the UC Berkeley 2020 LRDP, which requires nesting bird surveys before tree removal, replacement of specimen trees, and precautions to avoid discharge of sediment and other pollutants into surface water during ground disturbing activities. As these fire fuel reduction projects would be federally funded, they would also implement conservation measures for the protection of Alameda whipsnake (and other federally listed species) as required by the US Fish and Wildlife Service. The fire fuel reduction projects would be beneficial for wildlife species as they would remove non-native species and promote native forests and scrub habitats. Because the EBMUD water storage tank would be located on University land, depending on location, it would also be required to comply with either the UC Berkeley 2020 LRDP or the LBNL 2006 LRDP requirements to minimize biological resource impacts. As discussed in **Section 4.3**, the proposed CRT project would replace any trees removed at a ratio of 1:1 and all replacement trees that are planted would be native trees and therefore would be beneficial for the wildlife species in the project region. The project would also implement 2006 LRDP mitigation measures that would avoid or minimize impacts to Alameda whipsnake. The Helios Energy Research Facility project would also implement 2006 LRDP mitigation measures that would avoid or minimize impacts to Alameda whipsnake and would replace trees that are removed. In summary, vegetation removal and ground-disturbing activities associated with the near-term cumulative projects would not result in a significant cumulative impact on biological resources.

Long Term Cumulative Development

In addition to the near-term projects discussed above, other projects considered under the 2006 LBNL (including the proposed project) and 2020 UC Berkeley LRDPs, as well as future residential development under the Berkeley and Oakland General Plans, would combine to reduce open space and available

habitat for both common and special-status wildlife and plants. However, open space currently comprises a significant portion of the geographic context for cumulative impacts analysis in this section. Most of the LBNL hill site and the UC Berkeley Hill Campus are currently in open space, as is the vast majority of Tilden Regional Park. New development occurring under the Berkeley or Oakland general plans in the area would primarily be considered infill in areas zoned as residential and there are no large developments pending in the area under these plans. The East Bay Regional Park District currently has no plans for large facilities development or reductions in open space at Tilden Park. Implementation of the LBNL 2006 LRDP would result in the development of approximately 9.5 acres of available open space and habitat at the site, which includes the loss of open space associated with the proposed CRT project as well as the Helios Energy Research Facility project. Implementation of the UC Berkeley 2020 LRDP could result in the development of less than 5 acres of existing open space in the Hill Campus. Therefore, growth under these plans would not result in a substantial reduction in open space or wildlife habitat and this cumulative impact is considered to be less than significant.

The magnitude of cumulative effects of development on biological resources is in large part determined by the extent to which resources are protected in plans and during specific project implementation. The LBNL and UC Berkeley LRDPs, as well as the East Bay Regional Park District's Master Plan and the City of Oakland and City of Berkeley General Plans, all contain policies and guidelines for protecting natural resources, including special-status species, sensitive natural communities, and jurisdictional waters. All development under the LBNL (including the CRT and Helios Energy Research Facility projects) and UC Berkeley LRDPs and any development under the East Bay Regional Park District's Master Plan would also take place in a regulatory context of federal, state, and local laws that combine to avoid and minimize impacts to special-status species, sensitive natural communities, jurisdictional waters, and wildlife migratory corridors and nurseries through a variety of tools, including the creation of resource-specific management plans and the application of mitigation measures. Mitigation measures and best management practices applied to specific projects would help to ensure that they would not result in substantial adverse impacts to biological resources. Therefore, the cumulative impact to biological resources resulting from the proposed CRT project and other considered projects would be less than significant.

Mitigation Measure: No project-level mitigation measure required.

5.5.4 Cultural Resources

CRT Cumulative Impact CUL-1: The proposed project, in conjunction with other reasonably foreseeable near-term and long-term development, would not

**result in a significant cumulative impact on cultural resources.
(Less than Significant)**

Based on an evaluation of the age and other criteria for determination of the significance of a historic structure, some buildings on the LBNL site are considered historic. Although the proposed project would alter the existing Building 50 stairway, it does not qualify as a historic resource and therefore the project would not contribute to a cumulative impact related to historic resources.

Concerning potential cumulative impacts on unknown archaeological resources, the areas surrounding LBNL are either built out or would be retained as open space, thus limiting development in undisturbed areas. Furthermore, all projects would be required to halt construction in the event that previously unknown archaeological resources are encountered during ground disturbing activities. Therefore, cumulative impacts on cultural resources would not be considered significant.

Furthermore, as specific projects are proposed in the vicinity and LBNL and in the region, lead agencies would have to determine, on a case-by-case basis, whether the potential for historical or archaeological resources to be disturbed or adversely affected exists at a particular site. Therefore, site-specific research on the presence of historical and/or archaeological resources is frequently one of the first considerations in project planning and CEQA review. Accordingly, implementation of the proposed project, in conjunction with other reasonably foreseeable development, is not expected to result in a significant cumulative effect on historical or archaeological resources.

Mitigation Measure: No project-level mitigation measure required.

5.5.5 Geology and Soils

CRT Cumulative Impact GEO-1: The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would place new structures and introduce an increased population in a seismically active region. (Less than Significant)

Development pursuant to the 2006 LRDP, along with development at UC Berkeley under the campus' 2020 LRDP, would increase both the population and employment concentration in the area of northeastern Berkeley and Oakland that is occupied by the UC Berkeley campus and the LBNL hill site. The proposed project would add up to 165 people at the Berkeley Lab site. It is anticipated that the Helios Energy Research Facility project would increase the day-use population at the Berkeley Lab site by over 300 people, and at times by as much as 600 people, when the auditorium is in use and at full capacity. Other near-term and long-term Berkeley Lab projects are not expected to cause substantial

increases in the day-use population; a maximum increase of 1,000 ADP over the Berkeley Lab's 2003 population is expected. In addition, other cumulative development in the surrounding area could result in population growth of approximately 13 percent in Berkeley and 20 percent or more in northern Alameda County and western Contra Costa County by 2025. Together, this cumulative growth would increase the population in the Bay Area, and particularly in proximity to the Hayward Fault, that would be subject to strong groundshaking in a major earthquake. Additionally, cumulative hillside development, either in the UC Berkeley hill area or on private property in the Oakland-Berkeley hills, would increase the number of persons at risk of seismically induced landslides and other potential slope-related hazards.

It is not possible to eliminate the risk from construction in earthquake-prone areas, nor is it possible to fully avoid all geologic hazards. However, these hazards would be mitigated to the extent practicable through implementation of and compliance with adopted General Plan policies, building codes, and regulations. Building codes and local construction requirements have been established to protect against building collapse and major injury during a seismic event. The proposed project would implement State seismic construction regulations and would implement additional measures, as described in CRT Impact GEO-2. Construction in conformance with the California Building Code, local building codes, where applicable, and other pertinent regulations and guidelines would reduce the risks of injury and structural damage from groundshaking, earthquake-induced landslides, and other seismic and geologic hazards to a less-than-significant level.

The EIR for the UC Berkeley SCIP found that the SCIP would result in a significant unavoidable impact due to the presence of the Hayward Fault, which traverses the SCIP site and runs below Memorial Stadium (UC Berkeley 2006). However, that impact is site-specific and the proposed project would not contribute to that site-specific impact.

Mitigation Measure: No project-level mitigation measure required.

5.5.6 Hazards and Hazardous Materials

CRT Cumulative Impact HAZ-1: The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would result in a cumulative impact related to evacuation along Centennial Drive during emergencies associated with a wildland fire or a major earthquake, but the project's contribution to the cumulative impact would not be considerable. (*Less than Significant*)

As discussed in **Section 4.6, Hazards and Hazardous Materials**, the proposed project's impacts related to emergency response and evacuation would be less than significant. The proposed project would not alter the evacuation routes of nearby neighborhoods, which would not use Cyclotron Road or the other internal Berkeley Lab roadways in the immediate vicinity of the CRT project site. In addition, in the event of evacuation by vehicle, traffic control would be provided on Centennial Drive and Cyclotron Road, which are potential evacuation routes, by the Berkeley Lab and UC Berkeley to ensure orderly evacuation of all persons in the area. There would thus be no project-specific impact related to an emergency response plan or an evacuation plan.

The proposed project is located in the Oakland-Berkeley hills, in an area that is at risk of wildland fires. It is also in close proximity to Hayward Fault and has the potential to experience substantial seismic groundshaking as a result of an earthquake on the Hayward or other major Bay Area faults. Development of near-term and long-term cumulative projects would add people and structures to a high fire risk area and to an area at risk of substantial seismic groundshaking. The proposed project has been designed to minimize its contribution to this cumulative impact. As discussed in CRT Impact HAZ-1, the Berkeley Lab in coordination with UC Berkeley has developed an Emergency Response Plan for the proposed project. The primary evacuation route for occupants of the CRT project would be toward Cyclotron Drive and, to the extent appropriate for the emergency at hand, persons evacuating the CRT building would not utilize Centennial Drive as a vehicular or pedestrian evacuation route. All personnel in the building would be directed by LBNL security staff to a designated meeting point within LBNL. Evacuation of personnel from this point would be coordinated with the Berkeley Lab, UC Berkeley, and the City of Berkeley to determine appropriate evacuation routes. The project would not add further congestion to the existing evacuation route for other Berkeley Lab areas along Centennial Drive. Therefore, the project's contribution to the cumulative impact related to evacuation during emergencies would not be cumulatively considerable.

Full development under the LRDP would increase both laboratory and other facility space at the LBNL hill site, potentially increasing the population at risk from wildland fires. Although any development at

LBNL, including the proposed CRT project, would meet required safety standards and fire codes at the time of individual facility construction, wildland fire hazards would continue to threaten the LBNL site. However, continued implementation of LBNL's vegetation management program would limit damage to assets from these fires and would reduce potential cumulative wildland fire hazards to a less-than-significant level. The proposed CRT project would be subject to LBNL's vegetation management requirements, as well as LBNL and building code requirements for fire resistance. The cumulative impact related to wildland fire hazards resulting from the proposed CRT project and other considered projects would be less than significant.

5.5.7 Hydrology and Water Quality

CRT Cumulative Impact HYDRO-1: The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not result in a significant cumulative impact on surface water resources. (*Less than Significant*)

Pursuant to LBNL 2006 LRDP, the Berkeley Lab plans to add a net total of 660,000 square feet of new building space on the LBNL site. However, LBNL has committed under the 2006 LRDP to control storm water runoff from new development and significant redevelopment to pre-project levels. Both the CRT and Helios Energy Research Facility projects include design features to meet this requirement.

The UC Berkeley 2020 LRDP does not identify any specific projects to be developed on the lands of the sub-watershed of the Upper Strawberry Creek. The UC Berkeley 2020 LRDP projects that approximately 100,000 gsf of building space could be constructed in the Hill Campus area, but the 2020 LRDP notes that on-site storm water management features would be incorporated so that there would be no increase in net storm water runoff flows. Finally, the EIR for the UC Berkeley Southeast Campus Integrated Projects (SCIP) found that, with mitigation, the SCIP would neither result in significant hydrological impacts nor contribute considerably to cumulative hydrologic impacts (UC Berkeley 2006).

The City of Berkeley General Plan indicates that no significant changes to roadways or the residential development in the Upper Strawberry Creek sub-watershed are anticipated.

Consistent with the 2006 LRDP mitigation measures, all projects on the LBNL site and consistent with its 2020 LRDP, all projects on the UC Berkeley campus would include design features to limit post-development flows to pre-development levels. All of these measures would help avoid significant hydromodification in the Strawberry Canyon and therefore significant erosion of the creek system would be avoided. The cumulative impact on surface water quality in terms of erosion and sedimentation would therefore be less than significant.

Furthermore, projects under both plans would also be required to comply with NPDES permit regulations to minimize short-term and long-term degradation of surface water quality from urban runoff. Therefore, each project that would be developed under either LRDP would be required to comply with the Statewide NPDES permit for discharges of storm water from construction sites and comply with Phase II NPDES requirements for storm water discharges after completion of construction in the case of UC Berkeley and with the site-wide Industrial Storm Water Permit in the case of LBNL. Compliance with NPDES requirements by the two entities would help avoid cumulative water quality impacts from urban runoff to the maximum extent practicable.

Mitigation Measure: No project-level mitigation measure required.

5.5.8 Land Use and Planning

CRT Cumulative Impact LU-1: **The proposed project, in conjunction with other reasonably foreseeable near-term and long-term development, would not involve a significant cumulative impact related to land use. (*Less than Significant*)**

As discussed in **Section 4.8**, CRT Impact LU-1, the proposed project would implement land uses that are consistent with the 2006 LRDP designation for the project site and are compatible with surrounding LBNL land uses. Lands designated for development by the LBNL 2006 LRDP, the UC Berkeley LRDP, and the City of Berkeley and Oakland General Plans are generally lower density or are already developed. Both the Berkeley Lab and the UC Berkeley campus would grow consistent with the adopted LRDPs. Cumulative development in the vicinity of the proposed project is not expected to introduce land uses that would be substantially incompatible with the proposed Berkeley Lab development or other adjacent development. Development of the proposed project along with the development of reasonably foreseeable projects in the vicinity of the proposed project, would not result in a significant cumulative impact associated with incompatible land uses. Therefore, the cumulative land use impact is considered less than significant.

Mitigation Measure: No project-level mitigation measure required.

5.5.9 Noise

CRT Cumulative Impact NOISE-1: **Near-term development in the vicinity of the project site would increase exterior noise levels during construction. (*Less than Significant*)**

Based on the construction schedules of the near-term cumulative projects listed in **Table 5.0-1**, it is anticipated that construction will be underway on a number of other near-term projects at the Berkeley Lab, UC Berkeley, and in the city of Berkeley the same time the proposed project is under construction. As discussed in CRT Impact NOISE-1, given the distance between the project site and the nearest sensitive receptors, the proposed project is expected to temporarily elevate noise levels at the project site and surrounding areas. This is considered a significant and unavoidable impact. However, due to the distance between the project site and the sites of most of the other LBNL projects (including the Helios Energy Research Facility project), noise from construction activities would not cumulate with that resulting from the construction of the CRT project. There would be no cumulative noise impact related to construction activity.

Cumulative construction truck traffic associated with the near-term projects listed in **Table 5.0-1** was analyzed to determine whether or not it would cause a substantial temporary increase in noise along the major arterials, namely Hearst Avenue, Shattuck Avenue, and University Avenue, that would be used by the construction trucks associated with the CRT project. Existing noise levels along these roadways are provided in the UC Berkeley LRDP EIR (Table 4.10-4). The baseline noise level along Hearst Avenue and Shattuck Avenue is 69-70 dBA L_{dn} . The baseline noise level along University Avenue is 70-73 dBA L_{dn} .

Construction truck traffic volumes were added together for eight projects at LBNL, including the CRT and Helios Energy Research Facility projects, four projects that would be constructed in the same period at UC Berkeley, and three projects in the city of Berkeley.² Assuming all projects are under construction concurrently, and all construction truck traffic is traveling along the same arterials, on a "normal day" the noise level is calculated to increase 1 dBA L_{dn} . On a "peak day" the noise level is calculated to increase from about 2 dBA to less than 3dBA L_{dn} . The second scenario represents the upper estimate of possible noise effects because peak construction truck traffic for *all* projects is unlikely to overlap. An increase of less than 3 dBA L_{dn} is not substantial and the cumulative noise impact from construction truck traffic would be less than significant. Even if vehicle trips associated with CRT and Helios Energy Research Facility project construction workers traveling to and from the site were added to the cumulative construction truck traffic, the resultant noise from this traffic would not exceed 3 dBA L_{dn} . Therefore, the cumulative noise impact from construction traffic would not be significant.

Mitigation Measure: No project-level mitigation measure required.

² The EBMUD water storage tank could not be considered in this analysis because specifics of the project are not available at this time in terms of the amount of excavation that would be involved and whether the project would balance cut and fill.

CRT Cumulative Impact NOISE-2: The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not result in a significant cumulative permanent increase in ambient noise levels. *(Less than Significant)*

As discussed in CRT Impact NOISE-3, four different scenarios were analyzed, including cumulative with project peak hour traffic volumes. These traffic data were used to determine whether there would be a substantial increase in traffic noise on streets serving the project site as a result of cumulative plus project-generated traffic. Project-generated traffic is calculated to make no noticeable or measurable change (less than 0.5 dBA L_{dn}) in noise levels at any of the roadway segments associated with the study intersections. Therefore, project-generated traffic would not make a cumulatively considerable contribution to noise increases that may occur due to other development.

Mitigation Measure: No project-level mitigation measure required.

5.5.10 Population and Housing

CRT Cumulative Impact POP-1: The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not result in a significant cumulative impact on population or housing. *(Less than Significant)*

CRT Impact POP-1 evaluated the impact of project growth in conjunction with other regional growth on population and housing. As noted **Section 4.10**, LBNL is one of the largest employers in Berkeley, and by far the greatest number of Lab employees live in Berkeley or the immediate vicinity. Accordingly, growth in Berkeley (including at UC Berkeley) is the focus of the cumulative analysis for the proposed project.

In addition to the population growth assumed for the proposed project, other reasonably foreseeable growth could contribute to existing population and housing totals. This growth could be accommodated through new development and through changes in the occupancy rates and use of existing residential and other building space.

As part of its General Plan Update in 2001, the City of Berkeley prepared population estimates for 2000 and projections of growth through 2020. The City projected an increase of approximately 3,200 households between 2000 and 2020 and a total population of about 116,000 in 2020.

Implementation of the UC Berkeley 2020 LRDP could result in an increase of 2,870 faculty and staff working in the Campus Park area and adjacent blocks and an increase of 1,650 students. Many students, faculty, and staff prefer to live close to the campus within the city of Berkeley. A key objective of the UC Berkeley 2020 LRDP is to increase the housing supply near campus for students, faculty, and staff. Under the UC Berkeley 2020 LRDP, there could be an additional 2,600 beds of housing added within 1 mile of the center of campus. It is likely that most of this housing would be developed in the city of Berkeley.

Therefore, the employment and enrollment growth associated with the UC Berkeley 2020 LRDP and the LBNL 2006 LRDP, including the proposed project, could represent substantial cumulative population growth and a concentration of population in the city of Berkeley. The employee population growth associated with the proposed project would contribute to this cumulative impact. However, increases in population growth associated with the implementation of the proposed project would represent less than one percent of the total number of people projected to be living in the cities of Berkeley and Albany in 2025. Housing demand associated with implementation of the proposed project would account for less than one percent of the total increase in households projected for most communities where LBNL employees live. These increases represent a less-than-significant impact for population and housing, and would not be considered a cumulatively considerable contribution to potential cumulative population and housing impacts.

Mitigation Measure: No project-level mitigation measure required.

5.5.11 Public Services

CRT Cumulative Impact PUB-1: **The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not result in a significant cumulative demand for public services. (*Less than Significant*)**

Cumulative conditions related to fire and police protection services are discussed under CRT Impacts PUB-1 and PUB-2 in **Section 4.11** of this EIR. Implementation of the proposed project would contribute to an increase in demand for fire protection services and police services. However, as discussed in **Section 4.11**, this increased demand would not result in the need for new or physically altered facilities, the construction of which could cause significant environmental impacts.

Other reasonably foreseeable development in the East Bay could result in the increased need for new or altered fire protection or police facilities in the region. The City of Berkeley General Plan indicates the need for additional fire protection facilities and the City of Oakland General Plan indicates the need for expanded facilities or the seismic retrofit of existing facilities. However, implementation of the proposed

project would not result in the need for new facilities, staff, or equipment to provide adequate fire protection or police services. Accordingly, the proposed project's contribution to cumulative demand would not be cumulatively considerable. Furthermore, planned residential development in local jurisdictions where Berkeley Lab employees might live, such as the cities of Berkeley or Oakland, would be subject to the local agency's zoning ordinance and general plan policies, which would require that environmental impacts associated with new residential development be mitigated to the maximum extent feasible.

Similar to police and fire services, implementation of the proposed project would not result in the need for new or physically altered public school facilities (CRT Impact PUB-3). The proposed project would include no housing, and therefore any effect on school facilities from the proposed project would be indirect. Any increased demand for school facilities would derive from residential development to accommodate increased daily population from the project. This indirect impact is expected to be minimal given the small number of new employees related to the proposed project compared to existing residential development. Therefore, implementation of the proposed project would not result in a considerable contribution to any cumulative increase in the demand for school facilities that would result in the need for new or physically altered facilities under cumulative conditions. Furthermore, planned residential development in local jurisdictions where new Berkeley Lab employees might live, such as the cities of Berkeley or Oakland, would be subject to the local agency's zoning ordinance and general plan policies. Planned development may also be required to pay school impact fees that, under CEQA, are deemed as full and complete mitigation for effects on schools. Therefore, the proposed project's cumulative effect on public school facilities would not be considerable.

Implementation of the proposed project would not substantially affect the provision of parks and recreation facilities (CRT Impacts PUB-4 and -5). Implementation of the proposed project along with cumulative development could result in an increased demand for parks and recreation facilities in Berkeley and Oakland. The proposed project would include no housing, and therefore the effect on parks and recreation facilities from the proposed project would be indirect. Any increased demand for parks and recreation facilities would derive from residential development to accommodate increased daily population from the project. Planned residential uses in each city (as well as in other local jurisdictions where the Berkeley Lab employees might reside) would be subject to the local agency's zoning ordinance and general plan policies, which would require that environmental impacts associated with the development of parks and recreation facilities are mitigated to the maximum extent feasible. Because the proposed project would result in no direct impact on park and recreation facilities, and because any indirect effect would be minimal, implementation of the proposed project would not result in a considerable contribution to any cumulative increase in the demand for park and recreation facilities.

Mitigation Measure: No project-level mitigation measure required.

5.5.12 Transportation and Traffic

CRT Cumulative Impact TRANS-1: *The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would degrade intersection levels of service. (Potentially Significant; Significant and Unavoidable)*

Near-Term Cumulative Impacts

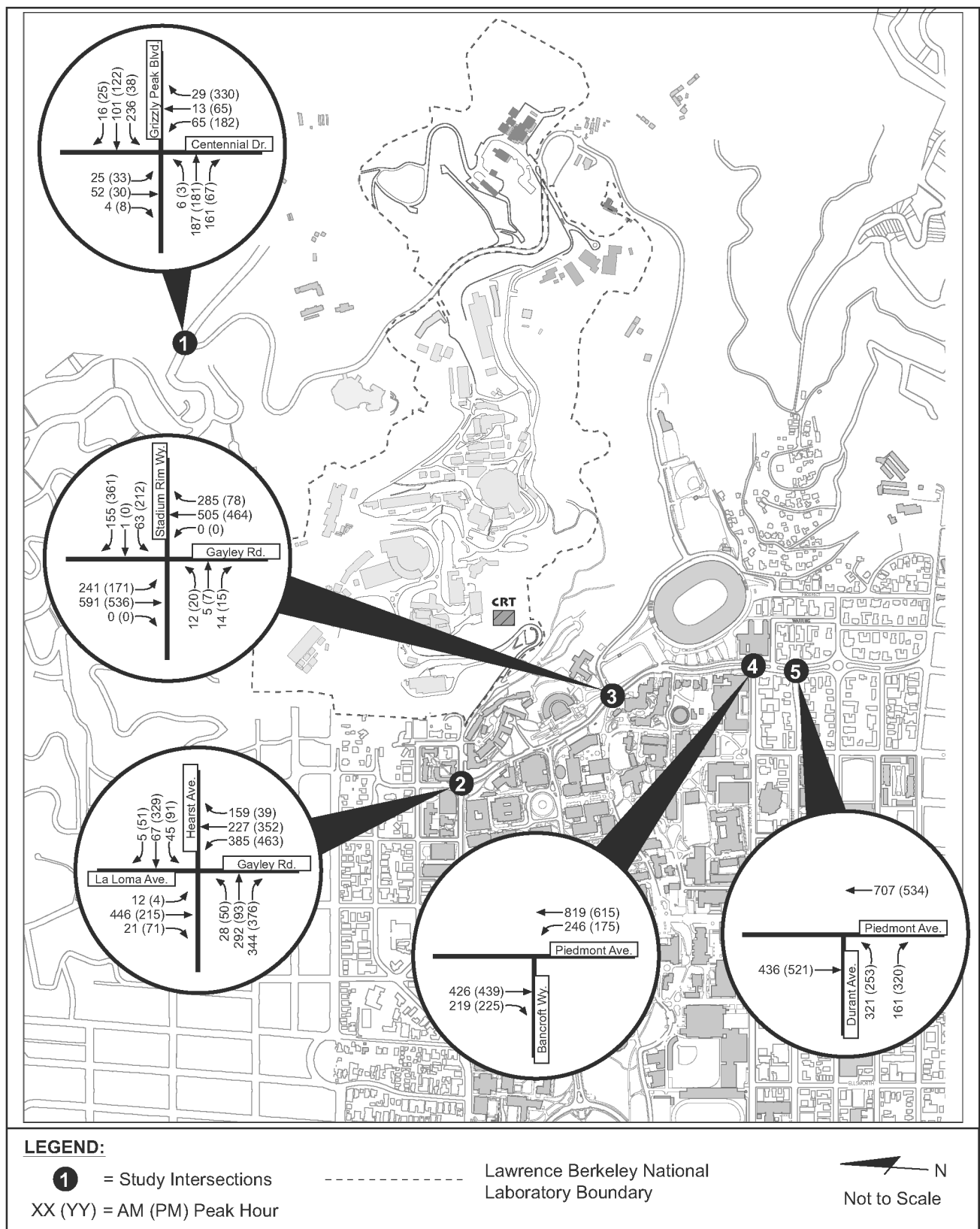
Table 5.0.1 lists near-term projects that, if approved and constructed in the near term, would contribute to potential cumulative traffic impacts. The near-term analysis presented in **Section 4.12** accounts for traffic generated by these near-term projects. As stated in CRT Impact TRANS-1, the proposed project would have a less than significant impact on traffic operations under near-term conditions. Thus, the project's contribution to cumulative impacts on near-term traffic operations would not be considerable.

Long-Term Cumulative Impacts

The cumulative traffic analysis completed for the 2006 LRDP (hereinafter 2006 LRDP Traffic Study) included an intersection operations analysis under year 2025 conditions, which analyzed the impacts of the buildout of the 2006 LRDP combined with the buildout of the UC Berkeley 2020 LRDP and general plans of Berkeley and surrounding communities. To evaluate the proposed project's contribution to the previously evaluated cumulative traffic impacts, an independent impact analysis was conducted for this CRT project EIR. To determine the consistency of the proposed CRT project with the LBNL 2006 LRDP within the project area, five study intersections were reanalyzed with the more refined information regarding the location and size of CRT and other projects in the area than was available at the time that the 2006 LRDP Traffic Study was conducted. The updated and refined analysis is compared to the cumulative information presented in the 2006 LRDP Traffic Study.

There are no planned roadway improvements within the project area that would be completed by 2025. Thus, no new or more substantial project-specific impacts would result from the CRT project than were analyzed in the 2006 LRDP Traffic Study; therefore, for intersections outside the project area, the data presented in the 2006 LRDP Traffic Study remains valid.

Figure 5.0-1, Updated Cumulative With Project Peak Hour Traffic Volumes, shows AM and PM peak hour intersection volumes under Year 2025 with CRT project conditions. Intersection volumes under this scenario were estimated by replacing the trip generation and distribution assumptions in the 2006 LRDP



SOURCE: Fehr & Peers - August 2007

FIGURE 5.0-1

Updated Cumulative With Project Peak Hour Traffic Volumes

Traffic Study for the project area with the more project-specific information now available for the proposed CRT and Helios Energy Research Facility projects (i.e., the new Helios Access Road is accounted for in the updated analysis). This updated analysis also accounts for the more specific location and number of parking spaces for the SCIP project, which is more refined than analyzed in the 2006 LRDP Traffic Study. **Table 5.0-4, Year 2025 Conditions – Study Intersection LOS Summary**, compares intersection LOS under Year 2025 with LRDP buildout conditions as presented in the 2006 LRDP Traffic Study with the updated analysis. Detailed calculation work sheets are provided in **Appendix 4.12**.

As shown in **Table 5.0-4**, study intersections would continue to operate at the same LOS under the Updated Year 2025 with LRDP conditions as under the Year 2025 with LRDP conditions presented in the 2006 LRDP Traffic Study. The new side-street stop-controlled Centennial Drive/Helios Access Road intersection would operate at LOS B during both AM and PM peak hours and the all-way stop-controlled Centennial Drive/Grizzly Peak Boulevard intersection would operate at LOS B during the AM peak hour and LOS D during the PM peak hour.

Other study intersections would operate at unacceptable LOS E or LOS F during both AM and PM peak hours. The Hearst Avenue/Gayley Road/La Loma Avenue intersection would operate at LOS E during the AM peak hour and LOS F during the PM peak hour. The Durant Avenue/Piedmont Avenue intersection would operate at LOS E during the AM peak hour and LOS F during the PM peak hour. Both Stadium Rim Way/Gayley Road and Bancroft Way/Piedmont Avenue intersections would operate at LOS F during both AM and PM peak hours.

Based on the Updated Year 2025 with LRDP conditions analysis as summarized in **Table 5.0-4**, these three intersections would continue to operate at unacceptable conditions. The proposed CRT project (by itself or combined with the Helios Energy Research Facility project) would increase total intersection volume by less than five percent. Thus, the proposed CRT project (by itself or combined with the Helios Energy Research Facility project) would contribute to this impact but would not trigger this impact. Based on the updated analysis, the proposed project would not make a cumulatively considerable contribution to the three significant and unavoidable impacts identified in the 2006 LRDP EIR. However, this project EIR conservatively concludes that the project's contribution to these intersection impacts would be considerable.

The proposed project already includes LRDP Mitigation Measure TRANS-1d, which would minimize trips, and LRDP Mitigation Measures TRANS-1a through 1c, which would address the significant cumulative intersection impacts. Furthermore, in conjunction with the approval of the 2006 LRDP, the Berkeley Lab has committed to work with the City of Berkeley and UC Berkeley to implement the necessary improvements at the three affected intersections to improve operations. However, even though LBNL has committed to pay its fair share of the cost of the required improvements at the

intersections, and this remains a binding mitigation commitment, the impacts would be considered significant and unavoidable because there is not yet an adopted reasonable plan for improvements at these intersections, and as such, it cannot be determined at this time whether the impacts would be mitigated to a less than significant level.

Mitigation Measure: Further mitigation is not feasible.

Significance after Mitigation: Significant and Unavoidable.

Table 5.0-4
Year 2025 Conditions – Study Intersection LOS Summary

Intersection	Control	Peak Hour	Year 2025 with LRDP ¹		Updated Year 2025 with LRDP	
			Delay (Seconds) ²	LOS ²	Delay (Seconds) ²	LOS ²
Centennial Drive/ Grizzly Peak Boulevard	All-Way Stop-Controlled	AM	11.4	B	11.4	B
		PM	27.3	D	27.9	D
Hearst Avenue/Gayley Road/La Loma Avenue	Signalized	AM	68.4	E	76.0	E
		PM	84.1	F	85.2	F
Stadium Rim Way/ Gayley Road	All-Way Stop-Controlled	AM	>60	F	>60	F
		PM	>60	F	>60	F
Bancroft Way/ Piedmont Avenue ³	All-Way Stop-Controlled	AM	>60	F	>60	F
		PM	>60	F	>60	F
Durant Avenue/ Piedmont Avenue	All-Way Stop-Controlled	AM	55.9	F	>60	F
		PM	36.8	E	37.5	E
Centennial Drive/ Helios Access Road	Side-Street Stop-Controlled	AM	N/A	N/A	10.5	B
		PM			11.4	B

Source: Fehr & Peers, August 2007.

N/A = intersection does not exist under this scenario.

¹ Based on Table IV.L-7 (Revised) in the LBNL LRDP Final EIR (July 2007).

² Signalized and all-way stop-controlled intersection delay and LOS based on average control delay per vehicle for the intersection, and side-street stop-controlled intersection delay and LOS based on average control delay per vehicle for the worst approach, according to the Highway Capacity Manual, Special Report 209, Transportation Research Board, 2000.

³ Based on the 2000 HCM methodology, the intersection would operate at LOS F during the AM peak hour and LOS E during the PM peak hour under Cumulative with CRT conditions. Based on field observations and measurements, the intersection currently operates at LOS F during both AM and PM peak hours due to the high number of pedestrian crossings, which the 2000 HCM methodology does not account for. Thus, the intersection would continue to operate at LOS F during both AM and PM peak hours under Cumulative with CRT conditions.

Bold indicates an intersection operating at unacceptable LOS E or LOS F.

CRT Cumulative Impact TRANS-2: Construction traffic associated with the proposed project and other near-term projects would not result in significant congestion on city streets. (Less than Significant)

The construction of the CRT project could coincide with construction of other LBNL, UC Berkeley, or other projects as listed in **Table 5.0-1**. Typically, each project would generate the greatest number of truck trips during the excavation phase of construction. It is extremely unlikely that all these projects would be under construction and in the excavation phase simultaneously. However, there may be temporary peaks of excavation-related and other truck activity that would affect vehicle circulation in the vicinity of project sites and on truck routes within the city, and the cumulative impact during those periods could be potentially significant.

LRDP Best Practice TRANS-6c, which requires LBNL to manage project construction schedules to minimize the combined impacts of project construction within LBNL, is included in the proposed project. Furthermore, pursuant to LRDP Best Practice TRANS-6a, which is also included in the proposed project, LBNL will meet and coordinate with UC Berkeley and City of Berkeley to schedule the construction of various projects to minimize roadway closures, overlap of excavation and other heavy truck activity periods, and minimize the combined impacts of construction activity on vehicle, bicycle, and pedestrian circulation and parking. Because LRDP Best Practice TRANS-6a through 6c are already included in the proposed project and CRT Mitigation Measure TRANS-6 would also be implemented, the project's contribution to the cumulative impact would not be considerable.

Mitigation Measure: No project-level mitigation measure required.

CRT Cumulative Impact TRANS-3: **The proposed project, in conjunction with other reasonably foreseeable near-term and long-term development, would not substantially affect transit, parking, or pedestrian and bicycle circulation. (*Less than Significant*)**

As described in CRT Impact TRANS-3, the project by itself would not have a significant impact on transit ridership. In addition, the project's contribution to transit ridership (except on the LBNL or UC Berkeley shuttle service) would be small. Therefore, the project is not expected to contribute considerably to any future cumulative impact on transit.

Parking demand generated by the proposed project combined with parking demand generated by other planned LBNL projects could potentially exceed the parking supply at LBNL. However, as a result of the ongoing TDM program proposed as part of LRDP Mitigation Measure TRANS-1d, which would be implemented as part of the project, and CRT Mitigation Measure TRANS-4, the proposed project would not make a cumulatively considerable contribution to a cumulative impact on parking within the LBNL site. Furthermore, since the LBNL hill site is somewhat isolated, and parking supply in the vicinity of the

site is limited, the project is not expected to contribute considerably to a potential future cumulative impact on parking outside the LBNL site.

The project would not contribute considerably to cumulative impacts on pedestrian and bicycle conditions because the effects of the CRT project would be limited to the vicinity of the project site in the LBNL hill site itself. Thus, impacts of the project would not combine with impacts of other development on pedestrian and bicycle conditions.

Mitigation Measure: No project-level mitigation measure required.

5.5.13 Utilities, Service Systems, and Energy

CRT Cumulative Impact UTILS-1: The proposed project, in conjunction with reasonably foreseeable near-term and long-term development, would not result in a significant cumulative demand for utilities and service systems. (*Less than Significant*)

The development of the proposed project would not result in significant impacts on utilities and service systems as discussed in **Section 4.13**. However, the project, in conjunction with reasonably foreseeable development at UC Berkeley's campus and in nearby communities, could result in increases in demand for utilities and energy. Impacts associated with the cumulative demand are discussed below.

EBMUD provides water to LBNL, UC Berkeley, and the cities of Berkeley and Oakland. As discussed in **Section 4.13**, the proposed project's demand for water is approximately 29.3 million gallons per year. Since the adoption of the 2006 LRDP and in conjunction with the development of the design of the CRT project, the Berkeley Lab has determined that additional water would be needed to serve the growth of LBNL under the 2006 LRDP. The Berkeley Lab has presented its revised estimate of 80 million gallons of water needed per year through 2025 (compared to about 61 million gallons a year, which was the previous estimate under the 2020 LRDP) to EBMUD, and EBMUD has indicated that it can provide this volume of water to LBNL from its existing supply sources (**O'Hearn 2007**). Therefore, the proposed project, in conjunction with other growth at LBNL, would not result in a demand for water that would require EBMUD to develop new water supply sources. Furthermore, no improvements to water supply mains are necessary to serve the CRT project or the cumulative growth at LBNL. Therefore the proposed project would not contribute to any cumulative environmental impacts from the construction of water infrastructure improvements.

The EIR for the UC Berkeley Southeast Campus Integrated Projects (SCIP) identified a significant impact related to wastewater collection as a result of implementation of the Integrated Projects (UC Berkeley,

2006). Specifically, the SCIP EIR notes that the existing sanitary sewer in Bancroft Avenue may not have adequate capacity to accommodate the improvements to Memorial Stadium, and that UC Berkeley would consult with the City of Berkeley about connecting the Integrated Projects to other sewer lines that have adequate capacity. The SCIP EIR also describes the discussions underway among LBNL, UC Berkeley, and the City of Berkeley to address sanitary sewer capacity. As described under CRT Impact UTILS-1 in **Section 4.13**, the existing sewer pipes that direct wastewater facilities at the Hearst Monitoring Station and sub-basin 17-013, located west of the project site, can accommodate the wastewater flows from the proposed project, and adverse effects on constrained wastewater collection facilities are not expected as a result of the project. Implementation of the proposed project thus would not result in a cumulative impact on constrained wastewater facilities that would be affected by other local projects.

Other foreseeable development in the surrounding area could contribute to cumulative increases in utility and energy demand. However, new development would occur within a largely built-out urban area where utilities and service systems generally are provided. Additionally, these increases in demand attributed to other development would be addressed on a site-by-site basis by the service providers prior to approval of new development, and through CEQA review of each development project. The incremental increase in demand for utilities associated with the LBNL 2006 LRDP would not be expected to represent a substantial increase in demand for utility and service systems, and existing utility delivery systems would be expected to handle growth anticipated under the 2006 LRDP. Therefore, the effect of this project in combination with other foreseeable development would not be significant, nor would the project's contribution to any cumulative effects be cumulatively considerable.

Mitigation Measure: No project-level mitigation measure required.

5.6 REFERENCES

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6.0 ALTERNATIVES

The California Environmental Quality Act (CEQA) requires that an EIR contain an analysis describing a range of reasonable alternatives to a project that could feasibly attain most of the basic objectives of the project while avoiding or substantially lessening any significant impacts. The analysis also evaluates the comparative merits of the alternatives (*CEQA Guidelines* Section 15126.6). Alternatives that avoid or substantially reduce significant impacts are considered, even if these alternatives would impede to some degree the attainment of project objectives or would be more costly to the project applicant (*CEQA Guidelines* Section 15126.6(b)). An EIR need not consider every conceivable alternative to a project, but rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation (*CEQA Guidelines* Section 15126.6(a)).

The project has been described and analyzed in the previous chapters with an emphasis on potentially significant and unavoidably significant impacts. The analysis in this section is intended to inform the public and decision-makers of alternatives to the project and to provide a meaningful evaluation, analysis, and comparison of these alternatives with the proposed project. As required by CEQA, this chapter also includes an analysis of the No Project Alternative.

In response to the Notice of Preparation for this EIR, several commenters expressed concern regarding project alternatives and stated that alternative off-site locations should be considered in the EIR. Sites specifically identified in the scoping comments include the UC Berkeley Richmond Field Station. These scoping comments are addressed in the impact assessment presented below.

6.1 OBJECTIVES OF THE CRT FACILITY PROJECT

Key objectives of the proposed project are to:

- Provide an integrated and appropriately designed facility that would allow for the continued operation and future advancement of the Berkeley Lab's NERSC High Performance Computing national users facility, Computational Research Division and joint Berkeley Lab/UC Berkeley Computational Science & Engineering programs;
- Provide adequate space, chilling capacity, and infrastructure to accommodate next-generation computing equipment and to allow for continual future upgrades to such equipment;
- Provide accessibility to a large, reliable, and economical electrical power source. The power source should be capable of serving both the immediate and potential future needs of Berkeley Lab's computing program;

- Provide researchers with convenient access to other Lab scientific facilities, programs, researchers, and services; locate the facility such that it fosters interaction and collaboration between the project and UC Berkeley programs; and
- Meet University of California policies on sustainability and achieve efficiencies in energy conservation, temperature control, operational and maintenance services, and transportation (i.e., near public transportation, and without provision of large amounts of parking).

6.2 IMPACTS OF THE CRT FACILITY PROJECT

To develop project alternatives, the Lab considered the project objectives and reviewed the significant impacts of the proposed project, identified those impacts that could substantially be avoided or reduced through an alternative, and determined the appropriate range of alternatives to be analyzed. **Section 4.0, Environmental Setting, Impacts, and Mitigation Measures**, of this EIR evaluates the potential for the proposed project to result in significant impacts to the following environmental topics: aesthetics; air quality; biological resources; geology and soils; hazards and hazardous materials; hydrology and water quality; noise; transportation and traffic; and utilities, service systems, and energy. All impacts were found to be less than significant or less than significant after incorporation of mitigation measures, with the exception of impacts related to construction noise and cumulative impacts related to air quality, which were found to be significant and unavoidable.

Aesthetics

Section 4.1, Aesthetics, of this EIR identified potentially significant impacts related to project construction activities (Impact VIS-1), which could be reduced to a less than significant level with project-level mitigation. No significant and unavoidable impacts were identified for aesthetics.

Air Quality

Section 4.2, Air Quality, identified less than significant impacts, with project-specific mitigation for construction impacts. No significant unavoidable project-level impacts were identified for air quality.

Biological Resources

Section 4.3, Biological Resources, of this EIR identified a potentially significant impact to nesting birds related to construction activities (Impact BIO-3), which could be reduced to a less than significant level with project-level mitigation. No significant and unavoidable impacts were identified for biological resources.

Cultural Resources

Section 4.4, Cultural Resources, of this EIR, identified less than significant impacts on historic resources, archaeological resources, and human remains. No significant unavoidable impacts were identified related to cultural resources.

Geology and Soils

Section 4.5, Geology and Soils, identified a potentially significant impact related to exposure of people and structures to seismic ground-shaking hazards (Impact GEO-2), which would be reduced to a less than significant level with project-specific mitigation, and less than significant impacts related to rupture of an earthquake fault, landslide hazards, substantial soil erosion, and hazard associated with expansive soils. No significant and unavoidable impacts were identified related to geology.

Hazards and Hazardous Materials

Section 4.6, Hazards and Hazardous Materials, identified less than significant impacts related to use and storage of hazardous materials and wildland fire hazards. No significant unavoidable impacts were identified for hazards.

Hydrology and Water Quality

Section 4.7, Hydrology and Water Quality, of this EIR, identified potentially significant impacts related to flooding (Impact HYDRO-2) and storm water quality (Impact HYDRO-4), which would be reduced to a less than significant level with project-specific mitigation. No significant and unavoidable impacts were identified for hydrology and water quality.

Land Use and Planning

Section 4.8, Land Use and Planning, of this EIR, identified less than significant impacts. No significant unavoidable impacts were identified related to land use.

Noise

Section 4.9, Noise, identified less than significant impacts related to noise and vibration associated with operational conditions. Significant unavoidable impacts were identified for noise associated with construction and demolition activities.

Population and Housing

Section 4.10, Population and Housing, of this EIR identified less than significant impacts. No significant unavoidable impacts were identified related to population and housing.

Public Services

Section 4.11, Public Services, of this EIR identified less than significant impacts. No significant unavoidable impacts were identified related to public services.

Transportation and Traffic

Section 4.12, Transportation and Traffic, identified less than significant impacts related to traffic, and no project-level significant unavoidable impacts were identified for transportation and traffic. The project traffic would make a potentially considerable contribution to the cumulative (2025) traffic congestion impact (Cumulative Impact TRANS-1).

Utilities, Service Systems, and Energy

Section 4.13, Utilities, Service Systems, and Energy, of this EIR, identified less than significant impacts related to water supply, sanitary sewer service, and energy use. No significant unavoidable impacts were identified for utilities, service systems, and energy.

Cumulative Impacts

Section 5.0, Cumulative Impacts, of this EIR identified less than significant cumulative impacts of the proposed project on all resources areas except traffic and human health risk. Computational Research and Theory (CRT) Cumulative Impact TRANS-1 shows that long term development in the project area, in conjunction with the proposed project, would significantly affect level of service at three study intersections, and that the impact would be significant and unavoidable because LBNL cannot guarantee the implementation of the improvements that would be needed to restore the level of service of the affected intersection to an acceptable level.

CRT Cumulative Impact AIR-3 concluded that the CRT project would not result in an incremental project-related increase in human health risk in excess of the significance threshold, and the contribution of the project would be magnitudes smaller than the cumulative risk. However, because the cumulative impact from TAC emissions would be significant, and the project would result in some TAC emissions that would contribute to the overall cumulative risk, the project's contribution would be considerable. Even with implementation of mitigation measures, the CRT project would still result in some incremental

TAC emissions that would contribute to the cumulative impact, and the project's contribution to the cumulative impact would not be reduced to a less-than-significant level.

6.3 ALTERNATIVES TO THE PROJECT

6.3.1 Alternatives Considered But Not Evaluated in Detail

This section discusses alternatives that were considered for the project but were not evaluated in detail because they did not meet project objectives or were found to be infeasible for technical, environmental, or social reasons.

Reduced Density Alternative

A reduced-density alternative examined for this EIR would include the supercomputer equipment floor and a reduced office area, but no high-rise office structure. It was assumed that the footprint of the building would remain at approximately 40,000 gross square feet (gsf), similar to the proposed project. The conceptual design considered for this alternative would consist of one main building with a lower-lying, wide structure extending north-south across the site to house the computer equipment floors and one or two stories over a portion of the computer floor to provide a reduced amount of office space as compared to the proposed project. Other project characteristics such as common areas, building design, colors and materials, lighting, landscaping, and access would presumably remain relatively the same as described for the proposed project.

Such an alternative would achieve some of the project objectives identified for the CRT facility presented above, including the opportunity to (1) foster interaction and collaboration between the project and UC Berkeley programs; (2) provide adequate space to accommodate next-generation computing equipment and allow for regular upgrades to such equipment; and (3) project a reliable power source for the project's computer equipment needs. The elimination of most of the office portion of the facility would not locate the facility such that researchers have convenient access to other Lab scientific facilities, a key project objective, and would only partially meet the objective to integrate and appropriately design the facility for advanced research in computational science and engineering.

This alternative was rejected because it would not reduce potentially significant or significant impacts of the project. Because the project would be developed on the same location as the proposed project, this alternative would have significant and unavoidable construction noise impacts similar to those of the proposed project. Significant and unavoidable operational impacts related to cumulative traffic conditions would also occur, although the project's contribution to them would be somewhat reduced. Construction-related impacts to aesthetics, biological resources, and hydrology and water quality, as well

as operational impacts related to hydrology and water quality, would not be significantly reduced or avoided. For these reasons, a lower-density alternative was eliminated from further consideration in this EIR.

Alternate On-Site Locations

Several areas within LBNL were considered for their potential to accommodate the proposed project; these included:

- **Building 51A.** With this location, Building 51A, located in the west-central portion of the LBNL site, would be demolished. The foundation would also be partially removed. A multi-story building would be constructed consisting of a 32,000 gsf computer floor (with high ceiling) and three floors totaling 100,000 gsf rising above the computer floor.
- **Building 90.** With this location, at the western end of the LBNL site, the trailers that currently exist on this site would need to be moved to another location. Cut and fill would be required as part of the site preparation. A two-story building would be constructed with a 32,000 gsf computer floor with a 21-foot-high ceiling, 10,000 gsf for scientific cluster support, and 90,000 gsf of office space. Electrical power would be extended from the Blackberry switching station, and the building's central utility plant would be located nearby.
- **Building 90/49 Split Site.** With this location, the trailers that currently exist on the Building 90 site would need to be moved to another location. Cut and fill would be required as part of the site preparation. A two-level building would be constructed in the current location of Building 90. The two-level building would consist of approximately 40,000 gsf of computer floor with a 21-foot high ceiling and an approximately 10,000 gsf second-story level to house office space. In addition, Building 49, a building previously proposed for the current proposed CRT project site, would be constructed on the western portion of the project site.

Significant drawbacks were found for these locations. The Building 51A site is adjacent to Building 51, the former Bevatron, and scheduled construction of the project at this location would be affected and possibly precluded by the Building 51 demolition schedule. In addition, the site has known groundwater contamination and site geotechnical conditions may not be suitable for construction of a multi-story building. Building 90 is located relatively close to residential areas in the City of Berkeley and could have significant aesthetic impacts and noise impacts on nearby residents. The Building 90 site is also relatively distant from the UC campus and other Berkeley Lab buildings and would not be easily accessible for staff and students. Finally, the Building 90/49 split site would place a building on the proposed CRT site and would have impacts similar to those of the proposed project, in addition to the impacts to the Building 90 location. For these reasons, these three alternative locations were eliminated from further consideration in this EIR.

Alternate Off-Site Locations

The 2006 LRDP EIR considered an off-site alternative location that would involve use of the Richmond Field Station for expansion of the Lab. The 2006 LRDP EIR concluded that this alternative would reduce some significant impacts identified for the development anticipated under the 2006 LRDP, but would not eliminate any significant impacts because the Richmond Field Station could only accommodate a portion of the development anticipated in the 2006 LRDP, and development would still need to occur on the Lab site. While this alternative could provide occupiable building space for the CRT project, it would not meet the CRT project objectives to expand functionality of Lab facilities, provide for cross-disciplinary research, or foster collaborative work environments among researchers, since it would result in a division of resources between locations. The Richmond Field Station does not have adequate power supplies to meet future project needs, and thus does not meet the CRT project objective of providing accessibility to a large, reliable, and economical electrical power source that could serve both the immediate and potential future needs of the Berkeley Lab's computing programs. In addition, if the CRT Facility were located at the Richmond Field Station, it would be too distant from the main UC campus, where many student and staff researchers who would use the CRT Facility are located. For this reason, an off-site location at the Richmond Field Station was rejected from further consideration in this EIR. Locating the proposed project at Mare Island, Alameda Air Base, Merced, or Nevada (locations mentioned by commenters with regard to the CRT and Helios projects) would not be feasible for the same reasons noted above.

Location of the CRT Facility on the UC Berkeley campus was also considered but rejected because the building space and population associated with the proposed project are not included in the UC Berkeley 2020 LRDP. Additionally, suitable space for construction or relocation of the High-Performance Computing center (HPC) is not available on the UC Berkeley campus. Therefore, locating the proposed CRT project on the UC Berkeley campus was eliminated from further consideration in this EIR.

6.3.2 Alternatives Considered in Detail

As noted earlier in this section, the proposed project would result in significant and unavoidable impacts related to construction noise and transportation and traffic. There would also be potentially significant or significant impacts related to aesthetics, biology, and hydrology and water quality; these would be reduced to a less than significant level with the implementation of project-specific mitigation measures. In all other resource areas, with the implementation of LRDP mitigation measures which are included in the proposed project, the project's impacts would be less than significant. Therefore, the focus of this alternatives analysis is on the ability of the alternatives presented below to avoid or minimize the significant environmental impacts of the proposed project, especially the significant and unavoidable impact related to noise and the significant and unavoidable impact related to cumulative traffic. The

following alternatives were evaluated in detail for their ability to avoid or minimize the significant environmental impacts of the proposed project. Note that in the discussion below, resource areas where project impacts would be less than significant are also discussed with the view to determine whether the alternatives would further reduce less than significant impacts of the proposed project and also to determine whether the alternative would result in a significant impact on a resource area where the project would not result in a significant impact.

Alternative 1: No Project

CEQA requires that a “No Project” alternative be considered. “No Project” is generally considered to be equivalent to a “no development” alternative. With this alternative, the proposed project would not be implemented. However, the site is designated for development by the 2006 LRDP, and thus future development could be constructed at the project site. The existing LBNL facility in Oakland would continue to be utilized.

Relationship to Project Objectives

Alternative 1 would not achieve any of the project’s key objectives identified above.

Comparative Analysis of Impacts

Aesthetics

There would be no impact to aesthetics because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar impacts as identified for the proposed project associated with construction and degradation of visual character.

Air Quality

There would be no impact to air quality because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar air quality impacts as identified for the proposed project.

Biological Resources

There would be no impact to biological resources on and off site since the project would not be constructed under this alternative. However, since the project site is designated for development by the

2006 LRDP, future development could occur on the project site and there could be similar biological resource impacts as identified for the proposed project.

Cultural Resources

Under the No Project Alternative, there would be no impacts to cultural resources as the project would not be built. However, some development could occur on the project site as the area is identified for development of Research and Academic uses under the 2006 LRDP and there could be similar less than significant impacts on cultural resources with the incorporation of 2006 LRDP mitigation measures.

Geology and Soils

There would be no impact associated with geology and soils because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar geology and soil impacts as identified for the proposed project.

Hazards and Hazardous Materials

There would no impact associated with wildland fires because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar wildland fire impacts as identified for the proposed project.

Hydrology and Water Quality

There would no impact associated with hydrology and water quality on and off site because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar hydrology and water quality impacts as identified for the proposed project.

Land Use and Planning

There would no impact associated with land use and planning because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar land use and planning impacts as identified for the proposed project.

Noise

There would no impact associated with noise because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and there could be similar noise impacts, as identified for the proposed project.

Population and Housing

Under the No Project Alternative, the proposed project would not be built. Therefore, no new population would be added to LBNL. However, under the 2006 LRDP, the project site could be developed with Research and Academic uses. Therefore, less than significant population and housing impacts similar to those described for the proposed project could occur.

Public Services

Under the No Project Alternative, the proposed project would not be built. Therefore, there would be no impacts related to public services. However, under the 2006 LRDP, the project site could be developed with Research and Academic uses. Therefore, less than significant impacts on public services similar to those described for the proposed project could occur. Mitigation measures similar to those identified for the proposed project would potentially be required to reduce the impacts to a less than significant level.

Transportation and Traffic

There would no impact associated with transportation and traffic because the project would not be built on the site. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and could increase traffic conditions similar to the impacts identified for the proposed project.

Utilities and Service Systems

There would no impact associated with utilities services that would be provided to the site since the project would not be built. However, since the project site is designated for development by the 2006 LRDP, future development could occur on the project site and could increase the demand for utilities services, similar to the impacts identified for the proposed project.

Cumulative Impacts

Under the No Project Alternative, the proposed project would not be built. Therefore, all of the cumulative impacts would be avoided, including the significant and unavoidable cumulative traffic and human health risk impacts. However, under the 2006 LRDP, the project site could be developed with Research and Academic uses. Therefore, cumulative impacts similar to those described for the proposed project could occur.

Alternative 2: Low Profile Design Alternative

This alternative would configure the supercomputer facilities (equipment floors) and office facilities components of the CRT facility as a single wide building mass approximately three stories high. The intent of this alternative is to reduce the perceived bulk and height of the proposed multi-story building. The supercomputer facilities (equipment floors) would be constructed in roughly the same footprint designated for the proposed project. This building would consist of two machine floors with approximately 20,000 gsf for a mechanical basement space and approximately 32,000 gsf for the HPC equipment floor. The main office block (office facilities) would rise two to three stories above the computer level and would provide a variety of general office, computer configuration and support, software support, videoconferencing, meeting, and visualization laboratory spaces, similar to the proposed project.

The total square footage of the building would be approximately 113,000 gsf. The amount of office space would be reduced compared to the proposed project. In addition, the amount of common space would be reduced with this alternative since there would be no upper-level loggia or pedestrian connection with the Building 70 complex. Access, parking, circulation, and landscape features would be generally similar to those including in the proposed project.

Relationship to Project Objectives

Alternative 3 would achieve some of the key project objectives identified for the CRT facility project. Specifically, implementation of Alternative 3 would achieve the following: (1) provide an integrated an appropriately designed facility for advanced research in computational science and engineering; (2) foster interaction and collaboration between the project and UC Berkeley programs; (3) provide adequate space to accommodate next-generation computing equipment and allow for regular upgrades to such equipment; and (4) project a reliable power source for the project's computer equipment needs. The reduction in the height of the building would reduce convenient access to other Lab scientific facilities, and the reduced office space would only partially achieve the project's objective related to providing adequate space for research programs.

Comparative Analysis of Impacts

Aesthetics

Implementation of Alternative 2 would reduce the overall height of the CRT facility and its corresponding visual prominence, especially when viewed against the existing mass and bulk of existing structures surrounding the project site. A single three- or four-story building would be constructed rather than the one-story computing facility and six-story office portion of the building. **Figure 6.0-1, Low Profile Design Alternative**, demonstrates that the project would not be visible from the public viewpoint of Hearst and Shattuck Avenues. The reduced height of the building would likely make it unobtrusive or not visible from other viewpoints as well. Temporary construction-related impacts would occur with this alternative, similar to the proposed project. However, the reduction in the mass and bulk of the buildings would further reduce the less than significant impact to the visual character of the area identified for the proposed project.

Air Quality

Implementation of Alternative 2 would result in the construction of approximately 113,000 gsf of building space that would house the supercomputer facilities and office facilities land uses. The amount of construction and the intensity of the land use proposed under this alternative would be similar to the proposed project, with the exception of a reduced common area. Given the relatively similar intensity between Alternative 2 and the proposed project, construction and operational air quality impacts would be less than significant, similar to the proposed project. Mitigation measures similar to the ones identified for the proposed project would be implemented and would reduce this impact to a less than significant level.

Biological Resources

Implementation of this alternative would result in a slightly reduced area of disturbance compared to the proposed project. Other project components, such as landscaping, access, pedestrian access, etc., would remain the same. Given this, implementation of this alternative would result in similar potential impacts to on- and off-site biological resources. With the exception of potential construction impacts to nesting birds, which would be reduced to less than significant with mitigation, less than significant impacts were identified for the proposed project related to biological resources, and no mitigation is required. Therefore, impacts to biological resources with this alternative would be less than significant or less than significant with mitigation, similar to the proposed project.

Figure 6.0-1, Visual Simulation - Low Profile Design Alternative

Cultural Resources

Under this alternative, the elevation of the building would be reduced, but the footprint impacts of the proposed project would be only slightly less than those of the proposed project. Therefore, this alternative would not reduce any of the less than significant impacts of the proposed project on cultural resources.

Geology and Soils

Implementation of Alternative 2 would result in a slightly reduced area of disturbance compared to the proposed project. However, similar to the proposed project, development of this alternative would require earthmoving activities during construction, such as grading and excavation, and the removal of vegetation would loosen and expose soils. Construction-related erosion control practices and the development of a site-specific erosion control plan, along with adherence to the requirements of the LRDP MM-GEO-3a and 3b, would reduce impacts to a less than significant level, similar to the proposed project. Alternative 2 would result in the similar, less than significant impacts related to seismic earth shaking hazards, landslide hazards, substantial soil erosion, and hazard associated with expansive soils as under the proposed project. No new or increased geological hazard impacts are anticipated under this alternative.

Hazards and Hazardous Materials

The project site is located in the Oakland-Berkeley Hills in an area prone to wildland fires. Similar to the proposed project, a significant impact related to risk of loss, injury or death involving wildland fires is not expected because the building would be designed and constructed in conformance with the requirements for office occupancy as defined by the California Building Code, Type I Fire Resistive Construction, and fire code safety requirements. Additionally, automatic sprinklers would be installed and a vegetation management program implementing fire-resistant ground cover would be implemented as part of this alternative. Given the above, wildland fire hazards would be less than significant, similar to the proposed project.

Hydrology and Water Quality

Under this alternative, the elevation of the building would be reduced by three to four floors. The footprint impacts of the proposed project would be slightly reduced. Therefore, this alternative will not reduce any of the impacts of the proposed project on hydrology and water quality, including the potentially significant impacts related to flooding and storm water quality, and the same mitigation measures as proposed for the project would be required.

Land Use and Planning

Under Alternative 2, the elevation of the building would be reduced and the footprint impacts of the proposed project would be slightly reduced. However, the uses within the building would remain unchanged. Therefore, this alternative will not alter the proposed project's less than significant impact related to land use and planning.

Noise

The amount of construction and the intensity of the land use proposed under this alternative would be similar to the proposed project, with the exception of reduced common area. Given the relatively similar intensity between Alternative 2 and the proposed project, construction-related noise impacts would be significant and unavoidable, as with the proposed project. Operational-related noise would be less than significant, similar to the proposed project.

Population and Housing

Because the LBNL on-site population would increase by the same number of persons under this alternative, the project's less than significant impacts on population and housing would remain unchanged.

Public Services

Because the LBNL on-site population would increase by the same number of persons under this alternative, the project's less than significant impacts on public services would remain unchanged.

Transportation and Traffic

Implementation of Alternative 2 would result in approximately the same number of persons on site and the same number of vehicle trips as would be generated by the proposed project. Project-generated traffic for the proposed project was determined to be less than significant since it would cause increases in traffic at nearby intersections that would be less than threshold levels. Project impacts related to parking, mass transit use, and pedestrian and bicycle facilities were also determined to be less than significant. Implementation of Alternative 2 would have impacts similar to those of the proposed project. No new or increased transportation and traffic impacts are anticipated under this alternative.

Utilities and Service Systems

Implementation of Alternative 2 would result in the same number of persons on site and would thus create the same demand for water, generation of wastewater, and energy use as the proposed project. No new or increased utility and energy impacts are anticipated under this alternative.

Cumulative Impacts

Because the LBNL population increase and therefore traffic increase under this alternative would be the same as that for the proposed project, the project's contribution to the significant cumulative 2025 traffic impact would remain unchanged. The TAC sources under this alternative would be the same as with the proposed project, and therefore the alternative's contribution to the significant cumulative human health risk impact would be similar to that of the proposed project and the impact would remain unchanged.

Alternative 3: Alternate LBNL Location

This alternative would make use of other space within LBNL to develop the CRT facility project. Alternative 3 would place a multi-story building on the current Building 25 and 25A location, near the geographical center of the Berkeley Lab site. Buildings 25 and 25A and associated ancillary buildings would be demolished. Slope filling would be required as part of the site preparation. The building would consist of 32,000 gsf of computer space, with a high ceiling, and three additional floors to house office space, totaling up to 140,000 gsf. Electrical utilities and chillers would be located in a 24,000 gsf basement level; cooling towers would be placed on the roof. Electrical power would be extended from the Grizzly Peak substation.

Relationship to Project Objectives

Alternative 3 would achieve some project objectives related to providing adequate space and power needed for the research programs. However, it would not meet or would only partially meet CRT project objectives to provide convenient access to other Lab scientific facilities, programs, researchers, and services, or to locate the facility such that it fosters interaction and collaboration between the project and UC Berkeley programs, since it would place the project on a site more distant from the Building 70 complex and from the main UC campus, where many student and staff researchers who would use the CRT Facility are located. The project site would not be within walking distance of the UC Berkeley campus, and would not allow easy interaction among program staff in the CRT facility and those in the Building 70 complex.

Comparative Analysis of Impacts

Aesthetics

Implementation of this alternative would place the CRT project on a more visually prominent site at the Berkeley Lab, and would increase the project's visibility compared to the proposed project. Construction activity would still occur and would be visible from public viewpoints. Mitigation measures similar to the ones identified for the proposed project would be implemented and would reduce this impact to a less than significant level. The reduction in building height compared to the proposed project would substantially reduce the building's visual bulk; however, because of the site location, the visual impact on visual character would not be substantially reduced under this alternative and would likely be greater than that of the proposed project. Depending on the siting and design of the building, Alternative 3 has the potential to have significant and unavoidable visual impacts related to visual character and light and glare.

Air Quality

Implementation of Alternative 3 would result in the construction of approximately 140,000 gsf of building space that would house the supercomputer facilities and office facilities land uses. The amount of construction and the intensity of the land use proposed under this alternative would be similar to the proposed project, with the exception of a reduced common area. Given the relatively similar intensity between Alternative 3 and the proposed project, construction and operational air quality impacts would be less than significant, similar to the proposed project. Mitigation measures similar to the ones identified for the proposed project would be implemented and would reduce this impact to a less than significant level.

Biological Resources

Implementation of this alternative would place new construction on a site that is largely developed with buildings and pavement. The proposed project's less than significant impact associated with tree removal would be reduced under this alternative as fewer trees are present on this site. Given this, implementation of this alternative would result in reduced potential impacts to on- and off-site biological resources. There is no potential for new or increased biological resource impacts under this alternative.

Cultural Resources

The location of Alternative 3 is in an existing developed and disturbed area, and no known cultural resources are located on or near the project site. Under this alternative, the impacts would be similar to

those of the proposed project. Therefore, this alternative would not reduce any of the less than significant impacts of the proposed project on cultural resources.

Geology and Soils

Implementation of Alternative 3 would result in a similar density of development as the proposed project. As with the proposed project, development of this alternative would require earthmoving activities during construction, such as grading and excavation, and the removal of vegetation would loosen and expose soils. Construction-related erosion control practices and the development of a site-specific erosion control plan, along with adherence to the requirements of the LRDP MM-GEO-3a and 3b, would reduce impacts to a less than significant level, similar to the proposed project. Alternative 3 would result in the similar, less than significant impacts related to seismic earth shaking hazards, landslide hazards, substantial soil erosion, and hazard associated with expansive soils as under the proposed project. No new or increased geological hazard impacts are anticipated under this alternative.

Hazards and Hazardous Materials

The project site is located in the Oakland-Berkeley Hills in an area prone to wildland fires. Similar to the proposed project, a significant impact related to risk of loss, injury or death involving wildland fires is not expected because the building would be designed and constructed in conformance with the requirements for office occupancy as defined by the California Building Code, Type I Fire Resistive Construction, and fire code safety requirements. Additionally, automatic sprinklers would be installed and a vegetation management program implementing fire-resistant ground cover would be implemented as part of this alternative. Given the above, wildland fire hazards would be less than significant, similar to the proposed project. No new or increased hazardous impacts are anticipated under this alternative.

Hydrology and Water Quality

Under this alternative, the area of impermeable surfaces would be increased relative to existing conditions. Therefore, this alternative would generate increased storm water runoff compared to existing conditions, similar to the proposed project. This could increase the impacts of the proposed project on hydrology and water quality, including the potentially significant impacts related to flooding and storm water quality, and the same mitigation measures as proposed for the project would be required. No new or increased hydrology and water quality impacts are anticipated under this alternative.

Land Use and Planning

Under Alternative 3, the elevation of the building would be reduced and the footprint impacts of the proposed project may be slightly reduced. However, the uses within the building would remain unchanged. Therefore, this alternative will not alter the proposed project's less than significant impact related to land use and planning.

Noise

The amount of construction and the intensity of the land use proposed under this alternative would be similar to the proposed project, with the exception of reduced common area. However, the project would be located further from sensitive receptors including residential areas, and the significant and unavoidable short-term construction noise impacts identified for the proposed project would be reduced to a less than significant level. Project-generated traffic for the proposed project was determined to be less than significant since it would cause an imperceptible change to the noise environment. Therefore, implementation of Alternative 3 would have lesser impacts than the proposed project and would avoid a significant and unavoidable impact. No new or increased noise impacts are anticipated under this alternative.

Population and Housing

Because the LBNL on-site population would increase by the same number of persons under this alternative, the project's less than significant impacts on population and housing would remain unchanged.

Public Services

Because the LBNL on-site population would increase by the same number of persons under this alternative, the project's less than significant impacts on public services would remain unchanged.

Transportation and Traffic

Implementation of Alternative 3 would result in approximately the same number of persons on site and the same number of vehicle trips as would be generated by the proposed project. Project-generated traffic for the proposed project was determined to be less than significant since it would cause increases in traffic at nearby intersections that would be less than threshold levels. Project impacts related to parking, mass transit use, and pedestrian and bicycle facilities were also determined to be less than significant. Implementation of Alternative 3 would have impacts similar to those of the proposed project. No new or increased transportation and traffic impacts are anticipated under this alternative.

Utilities and Service Systems

Implementation of Alternative 3 would result in the same number of persons on site and would thus create the same demand for water, generation of wastewater, and energy use as the proposed project. No new or increased utility and energy impacts are anticipated under this alternative.

Cumulative Impacts

Because the LBNL population increase and therefore traffic increase under this alternative would be the same as that for the proposed project, the project's contribution to the significant cumulative 2025 traffic impact would remain unchanged. The TAC sources under this alternative would be the same as with the proposed project, and therefore the alternative's contribution to the significant cumulative human health risk impact would be similar to that of the proposed project and the impact would remain unchanged.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table 6.0-1 presents a summary comparison of the alternatives with the proposed project with the purpose of highlighting whether the alternative would result in similar, greater, or lesser environmental impacts than the proposed project.

The No Project Alternative would avoid all of the significant environmental impacts of the proposed project. This alternative would therefore be the environmentally superior alternative. It would, however, not meet any of the proposed project's objectives.

If the No Project Alternative is the environmentally superior alternative, *CEQA Guidelines* Section 15126(d) (2) requires that an EIR identify an environmentally superior alternative from amongst the other alternatives evaluated in the EIR.

Of the other alternatives evaluated in this EIR, the location of the proposed project at an alternate LBNL location (Alternative 3) would reduce the project's significant and unavoidable construction noise impact and could reduce some of the project's less than significant impacts on biological resources, but would result in a greater visual impact. The project's noise impacts, although significant and unavoidable, would be temporary in nature. Aesthetic impacts would be permanent.

Therefore, the Low Profile Design alternative (Alternative 2) is considered the environmentally superior alternative because it would reduce the visual impacts of the proposed project, although all other significant impacts would remain unchanged including the significant and unavoidable impact related to construction noise. This alternative would meet most of the objectives of the proposed project but would

reduce the space for important program elements and therefore would adversely affect the project's goal of providing adequate space for program activities.

**Table 6.0-1
Summary Comparison of CRT Project Alternatives**

CRT Project Impact		Proposed CRT Project (Before Mitigation)	No Project Alternative	Low Profile Design Alternative	Alternate LBNL Location Alternative
VIS-1	Construction activities associated with the project would create temporary aesthetic nuisances for adjacent land uses.	PS (Less than Significant with Mitigation)	NI*	=/-	=
VIS-2	The proposed project would alter views of the LBNL site and would result in a substantial adverse effect to a scenic vista or substantially damage scenic resources.	LTS (Less than Significant)	NI*	-	+
BIO-3	The proposed project would not adversely affect special-status nesting birds (including raptors) such that nests are destroyed, they abandon their nests or that their reproductive efforts fail.	PS (Less than Significant with Mitigation)	NI*	=	-
HYDRO-2	Development of the site would alter surface drainage patterns on the site which could result in increased peak flows and induce flooding in downstream reaches.	PS (Less than Significant with Mitigation)	NI*	=	=
HYDRO-4	Stormwater runoff from the proposed parking area, access road and other impervious surfaces could potentially contribute to long-term pollutant discharges to surface waters, including on-site streams and downstream to Strawberry Creek and the Bay.	PS (Less than Significant with Mitigation)	NI*	=	=
NOISE-1	Construction activities would temporarily elevate noise levels at the project site and surrounding areas.	S (Significant and Unavoidable)	NI*	=	-
<u>Cumulative AIR-3</u>	<u>Even though overall cumulative impacts will decrease over time, the proposed project would make some incremental contribution to cumulative cancer risk impacts associated with future development of LBNL and UC Berkeley.</u>	<u>S</u> (Significant and Unavoidable)	<u>NI*</u>	<u>=</u>	<u>=</u>

CRT Project Impact		Proposed CRT Project (Before Mitigation)	No Project Alternative	Low Profile Design Alternative	Alternate LBNL Location Alternative
Cumulative TRANS-1	Implementation of the proposed CRT project, in conjunction with Berkeley Lab growth under the 2006 LRDP, and other regional growth would degrade the level of service at certain local intersections under 2025 conditions.	S (Significant and Unavoidable)	NI*	=	=
Cumulative TRANS 2	Construction vehicle traffic associated with the proposed CRT project, combined with construction traffic from other LBNL projects, UC Berkeley projects, and other projects proposed in Berkeley, would temporarily and intermittently result in a potentially significant cumulative impact on the local roadways, but the project's contribution would not be considerable.	S (Less than Significant)	NI*	=	=

Source:

¹ Table Note NI*: There could be environmental impacts from the development of another project at the proposed site, pursuant to the 2006 LRDP.

KEY

- S Significant impact
- LTS Less-than-significant impact
- NI No Impact
- = Impact similar to proposed project
- Impact less than proposed project
- + Impact greater than proposed project

